

MAURICE CORNFORTH

*SCIENCE*

versus

*IDEALISM*

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by MAURICE CORNFORTH

*In Defense of Philosophy  
against Positivism and Pragmatism*

INTERNATIONAL PUBLISHERS • *New York*

## SCIENCE VERSUS IDEALISM

### *In Defense of Philosophy against Positivism and Pragmatism*

By MAURICE CORNFORTH

Here is the first American edition of this major work by an outstanding British Marxist philosopher, who is already known to many readers for his popular *Introduction to Dialectical Materialism*. The present book combines two previous volumes in a new and completely rewritten single work, which may be considered an important original critique of the principle trends in contemporary philosophy.

Major attention is centered on logical positivism, in its various versions and schools, particularly the writings of Dewey, Russell, Morris, Carnap, and James. Particular attention is also paid to theories of semantics and their claim to help solve

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(Continued from front flap)

problems of both science and society. These theories, the author holds, have roots in the United States and he maintains the progress of philosophy demands a decisive break with their whole approach and methodology. Despite their claim to hard-headed empiricism, Mr. Cornforth insists, such theories are entangling philosophy in new idealist confusions and metaphysical schemes.



MAURICE CORNFORTH was born in London in 1909. He studied philosophy at University College, London; and at Trinity College, Cambridge; and later held research scholarships at Trinity College. His *Introduction to Dialectical Materialism*, in three volumes, has been used widely as a popular textbook.



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SCIENCE FOR PEACE AND SOCIALISM

# Science Versus Idealism

In Defence of Philosophy against Positivism  
and Pragmatism

*By*  
**MAURICE CORNFORTH**

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## FOREWORD

THIS book, which was published in London in 1955, is a combination of two earlier books, *Science versus Idealism* (1946) and *In Defence of Philosophy* (1950). Very extensive changes were made in what I had written before. Besides a very large number of small alterations, many passages were completely rewritten, a good deal was deleted, and a good deal was added.

If after seven years I could change it again, I would have to add quite a lot about more recent developments of "logical positivism." I think the criticisms of its earlier varieties in this book remain quite correct, but the whole trend of this philosophy has been towards much less open subjectivism, and the emphasis on the logical study of language has been accentuated.

But the chief change I would make would be in the references to the social and political standpoint of Bertrand Russell.

At the end of the book (p. 444) it is stated that "many bourgeois philosophers" are facing a dilemma—either to tolerate and serve the forces of war, or else to help the fight for peace. Very greatly to his credit, there is no doubt as to which side Russell has taken. There is, of course, a contradiction between his present stand in favour of international understanding and the renunciation of nuclear weapons, and some of his earlier statements quoted in these pages. But I do not think this represents any change in the character of his philosophy, as I have described and criticised it in this book, or in his hostility to socialism. It represents rather his timely recognition of facts—of what another war would really mean, and therefore of the necessity of finding some way to prevent it. Having recognised facts, Russell has never been lacking in either courage or consistency in his personal actions.

M.C.

London, June, 1962.

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## INTRODUCTION

EVERYBODY has some kind of philosophy, even though they have never learned to discuss it. Everybody is influenced by philosophical views, even though they have not thought them out for themselves and cannot formulate them. For philosophy is nothing but our most general account of the nature of the world and of our place in it—our world outlook.

But the working out of philosophical views in an exact and systematic way has become a specialised job, undertaken by the trained members of various schools of philosophy. Nowadays it has even become a profession, so that we can speak of “professional philosophers.” As a result, much of the discussions of these schools has become largely uninteresting and incomprehensible to everybody but the “professionals” and their coterie.

What is most of all needed, however, is that philosophy should cease to be so specialised—the preserve of the schools—and become the possession of the masses of the people.

This does not mean that it should be vulgarised and made easy. Spinoza, one of the greatest philosophers, said that “all excellent things are as difficult as they are rare.” He was right in thinking that excellent philosophy is difficult, but it does not follow that it must also be rare.

What it does mean is that philosophy must serve the masses of the people by helping them to answer their own problems.

This is not the aim of the philosophers of the schools. They have tended to become more and more specialised, and more and more remote from the problems and interests of the people. For their part, they look on this as a virtue and think they are painstakingly unravelling the truth—an operation so intricate that only the most highly trained can attempt it. But in reality they are only obscuring and distorting the truth in a maze of conundrums of their own invention.

These conundrums and all the subtleties of the scholastics are not, as they themselves imagine, products of pure abstract thought. If they were, they could be of no possible interest

except to other "pure thinkers." But the thinkers and their thoughts are in fact the products of the social order—in our case, of the capitalist social order. In this way the most meta-physical of their speculations have their roots firmly embedded in material reality. The philosophers of the schools are those who fundamentally accept the social order; they accept its outlook and its valuations and do not seriously challenge it or seek to change it. It is this which determines the character of their philosophical views, their basic theoretical assumptions and approach, their disputes and their problems.

There are a number of schools arguing with one another. But their whole argument fulfils a definite social function. In some cases the philosophical schools elaborate ideas which amount to a more or less direct defence of things as they are. Others know that there is something wrong, but inculcate a passive acceptance of social evils by teaching that they flow from the very nature of things and from the necessary imperfections of mankind. Others express the demand for a change, but sidetrack this into utopian schemes. All, in these various ways, are a force operating in men's minds to make them accept the capitalist order and defend it. And however remote from the common man the philosophical schools may be, their teachings nevertheless do not fail to influence him.

As capitalism has entered upon its last phase—monopoly, the phase of imperialism; and as all its contradictions have become intensified and it has entered upon a state of insoluble general crisis; so its philosophy has become more involved, more abstract, more specialised.

And at the same time one tendency above all has come to the top, and that is to retreat from any point of view which seeks through philosophy to understand the world and our place in it, but to say that the real world is unknowable, that it is the arena of mysterious forces which pass our comprehension. Far from trying to find out how we can advance human knowledge and human action, the philosophers set about explaining the necessary limitations of human knowledge and human action.

This is nothing but the ideological expression of the general crisis of capitalism. Capitalism has reached its limits of development. Within the limits of capitalism men are at

the mercy of forces which they can neither understand nor control, and this is reflected in the specialised teachings of philosophers. The consequences of the limitations of the capitalist social order are represented by the philosophers as belonging to the very nature of the world and of the human mind.

All this means that there has taken place and is taking place a process of the real degeneration of philosophy. Philosophy has become highly specialised, remote from the people, abstract and barren, a doctrine not of the advancement of knowledge but of the limitations of knowledge, not a force for human emancipation but an apology for the existing social order.

It is against this type of philosophy that this book is written. Against the philosophies of capitalism it defends the philosophy of the struggle for socialism—Marxism, dialectical materialism.

Because of the existing state of "professional" philosophy, many people are asking what is the use of philosophy anyway, and are deciding they have no use for it. But this merely means that they themselves uncritically accept all sorts of odds and ends of philosophical doctrines, including those of the very philosophers they pretend to despise, which operate in their minds without their thinking about it. For everyone is influenced by philosophy, and if they take no interest in it, that merely means that they are influenced by whatever secondhand scraps of it come their way through the schools, the press, the church, the radio and the cinema. To have no use for philosophy means uncritically to accept and to use capitalist philosophy.

Men do need an orientation. And because of the bankruptcy of contemporary "professional" philosophy there are some who are now calling for the revival of all sorts of outworn creeds from the past—such as the philosophy of Plato, or such as "Christian" philosophy, whatever that is conceived to be.

Their desire to escape from the barrenness of the contemporary schools, and to produce a philosophy which will give some conscious orientation to the common man, may be praiseworthy. Nevertheless, by digging for this in the archives of the past they are in effect passing over the achievements of several centuries of human progress, and, in particular,



the achievements of modern science. The net result is that they produce an orientation which is the very opposite of a scientific outlook, and leaves men the prey to all sorts of superstitions. It is only another facet of capitalist philosophy. Conscious of the failure of capitalism's professional philosophers, these people turn back and seek for inspiration in the philosophy of the middle ages or of ancient slave society.

The philosophy of the present and the future must build on the foundations of the past. But it must build on them. It must advance our understanding of the world and of human society on the basis of the discoveries of science and of the experience of the struggle for progress. Only in this way can philosophy meet the needs of the people. And it is just this which Marxism has achieved. In Marxism, philosophy meets the needs of the people by helping them so to understand the nature of the world and of man's place in it as to be able to change the world and to transform human society—to advance man's dominion over nature and to emancipate mankind from oppression and superstition.

Marxism, which bases its orientation on the struggle to end capitalism and to advance to communism, sets itself against the barren abstractions of the schools of capitalist philosophy and against those who are seeking to revive dead theories from the past. It unlocks the door of philosophy for the people, and makes alive for them the heritage of the past, by continuing the tradition of philosophical thought which seeks to achieve a rational comprehension of the material world and of history. It is only by striving to change the world that we can understand it, and by striving to improve the condition of man that we can understand human nature.

Marxist philosophy thus stands on the highroad of the development of philosophy, which can only advance as it serves the cause of human emancipation. It is the successor of all that was best in the philosophy of the past, in contrast to some of the present day philosophical schools of capitalism.

In this book I have not attempted to examine in detail all the schools of contemporary philosophy. In particular, I have not discussed the more progressive ones. I have concentrated on one alone, the school of *positivism*.

Positivism claims to be a scientific philosophy. But it

employs its own principles for interpreting science. And these principles lead to the negative conclusion that we can never know anything of the law-governed processes of the objective world.

If we are scientific, say the positivists, we can formulate ideas which serve to correlate the sense-data which we receive when we observe things; or, as the particular variety known as *pragmatists* have it, ideas which are found to work, in the sense that we find it pays us to believe them and act on them. But our ideas do not and cannot reflect objective material reality, which exists independent of our thinking of it and experiencing it.

The positivists have elaborated various theories about the nature of thinking, knowledge, truth, scientific method and language corresponding to this doctrine. The positivist outlook has penetrated deeply into modern philosophy of science in particular, and it includes those philosophical trends and theories known as logical analysis, logical positivism and pragmatism. These are the theories which are examined in this book.

In trying to get to grips with them it is important not to take them at their face value. They did not appear suddenly out of the blue, as their authors sometimes seem to think, as the long-sought solution of all the problems of philosophy. They have an historical background and are only descendants of earlier trends of philosophy. And so I have approached them historically, to find out where they came from and whither they are leading.

Today positivism has concentrated within itself all the most negative features of bourgeois philosophy—the doctrine of the limitations of knowledge and the unknowability of the real world—and has carried to the furthest pitch the narrow specialisation of philosophy, scholastic phrasemongering and barren abstraction. Yet the positivist theories pass themselves off as the very last word of scientific enlightenment.

Just because of their concern with science, positivist ideas are embraced by many people today who are seeking a progressive path and coming into the fight against reaction. But these very ideas play a major part in heading people off from a genuine understanding of science, and from finding

the way to use that understanding to help solve the pressing problems of mankind. Just because of its scientific appearance, positivism is especially influential in sowing confusion in the minds of those moving into opposition to capitalism. That is why the polemic against positivism has been and still is a most important polemic of Marxism in the field of philosophy.

## PART ONE: IDEOLOGICAL ROOTS OF POSITIVISM

### CHAPTER I

#### ENGLISH MATERIALISM IN THE 17TH CENTURY

##### I. MATERIALISM AND THE SCIENTIFIC OUTLOOK—FRANCIS BACON

"ENGLAND," said Marx, "is the original home of all modern materialism, from the 17th century onwards."<sup>1</sup>

Two Englishmen, Francis Bacon, and after him Thomas Hobbes, inaugurated modern materialism. A third, John Locke, continued the work they had begun.

Their main contention was that all knowledge is furnished through the senses. That is to say, we can know nothing except what we can learn through our senses, we can form no significant ideas that are not derived from experience, and theories which cannot be experientially verified are worthless.

"The real progenitor of English materialism," Marx continued, "is Bacon. To him natural philosophy is the only true philosophy, and physics, based upon the experience of the senses, is the chief part of natural philosophy. . . . According to him the senses are infallible and the source of all knowledge. All science is based upon experience, and consists in subjecting the data furnished by the senses to a rational method of investigation. Induction, analysis, comparison, observation, experiment, are the principal forms of such a rational method."

This materialist doctrine set up the scientific view of nature, as against the previous philosophy. It expressed the revolt against the categories of feudal thought—first causes, substantial forms and the like—which stood in the way of understanding the real causes and laws of motion of natural phenomena.

Thus for instance Thomas Aquinas, who was a traditionally

<sup>1</sup> Quoted by Engels in the Introduction to *Socialism, Utopian and Scientific*.

recognised philosophical authority, would agree that knowledge *begins* with experience, and that the senses provide the data for the system of human knowledge. But for him that system must be constructed on the basis of principles laid down by authorities recognised by the Church, leading to orthodox theological conclusions. And by arguing from empirical data to "first causes" he constructed a body of theoretical propositions which could not possibly be submitted to any test of experience.

If science was ever to flourish, then this traditional philosophy had to be destroyed. For, as Bacon pointed out, such reasonings to first causes "are indeed but remorae and hindrances to stay and slug the ship from further sailing; and have brought this to pass, that the search of the physical causes hath been neglected and passed in silence."

The materialist doctrine inaugurated by Bacon sought to replace speculation about nature by scientific investigation. It did not formulate any all-embracing "system of nature," but, basing itself on a materialist theory of knowledge and scientific method, called for the experimental investigation of natural processes. It is true that Bacon's own detailed theory of scientific method was narrow and scholastic in its formulation and contained many incorrect and arbitrary features. Nevertheless his theory of knowledge dealt a shattering blow against the old feudal philosophy and inaugurated a development of materialist thought corresponding to the rise of modern natural science.

Bacon's two chief philosophical works, *The Advancement of Learning* and *Novum Organum* (or *New Logic*), were not philosophical treatises on the nature of things, but were treatises on the *method* whereby *knowledge* of the nature of things might be secured.

In the First Aphorism of *Novum Organum*, Bacon propounded the leading principles of his whole thought, as follows:—

"Man, the minister and interpreter of nature, does and understands so much as he may have discerned concerning the order of nature by observing and meditating on facts; he knows no more, he can do no more."

And again, in the *Advancement of Learning*:—

"All true and fruitful natural philosophy hath a double

scale or ladder, ascendent and descendent; ascending from experiments to the invention of causes, and descending from causes to the invention of new experiments."

In the *Novum Organum*, Bacon went on to compare this view of knowledge with the views of his predecessors.

"They who have handled the sciences," he wrote, "have been either empirics or dogmatists. The empirics, like the ant, amass only and use; the dogmatists, like spiders, spin webs out of themselves. But the course of the bee lies midway—she gathers materials from the flowers of the garden and the field, and then by her own powers changes and digests them. Nor is the true labour of philosophy unlike hers. It does not depend entirely, or even chiefly, on the strength of the mind, nor does it store up in the memory unaltered the materials provided by natural history and mechanical experiments—but changes and digests them by the intellect."

Bacon had not the slightest doubt that knowledge thus gained by correct scientific method was *objective*, that is to say, referred to the really existing material world, and gave a true, though of course always incomplete, account of that world.

Thus in the *Novum Organum* he spoke of: "Knowledge which is the image or echo of existence." And in the *Advancement of Learning* he said:—

"God hath framed the mind of man as a mirror or glass, capable of the image of the universal world, and joyful to receive the impression thereof, as the eye joyeth to receive light; and not only delighted in beholding the variety of things and the vicissitude of times, but raised also to find out and discern the ordinances and decrees, which through all those changes are infallibly observed."

Thus in brief Bacon's new doctrine asserted:

- (1) That science is the highway to knowledge.
- (2) That scientific knowledge is based on observation. On the basis of observations, scientific theories are worked out, which must always be *tested* by fresh observations, which in turn suggest further theoretical developments—and so on.
- (3) That scientific knowledge is objectively true, and that no other means of attaining objective truth exists.

(4) Bacon contrasted the method of science, not only to the unscientific amassing of "undigested" facts, but to the method

of "dogmatism." By this he meant the propounding of theories a-priori, that is, not based on observation, not tested by observation, but derived from principles which are supposed to be given in some way without reference to experience.

Bacon's materialism, as Marx observed, "pullulates with inconsistencies imported from theology." But nevertheless such a materialist doctrine, which attacked and destroyed the old scholastic philosophy, was no less destructive of the theology of which that scholasticism was the philosophic foundation.

For Bacon not only asserted the importance and value of the natural science which was growing up in his time. He was not content merely to assert that this science established many interesting and useful truths about the constitution of the created world. But he asserted that the methods of natural science were the *only* methods of obtaining knowledge; that theories which could not be scientifically verified were worthless; and that on the basis of natural science a sufficiently complete picture of the world of nature and society could be built up, which would require no supplementation from any philosophy standing above the sciences.

This was the materialist and revolutionary content of Bacon's philosophy. And the scientific view of the world, for which Bacon argued, must in the end say of God, as of all theological and supernatural principles, "I have no need for that hypothesis."

## 2. A MATERIALIST SYSTEM OF METAPHYSICS—HOBBS

Bacon's doctrine was developed by his pupil, Thomas Hobbes, into a systematic theory of metaphysical materialism.

"Hobbes," said Marx, "is the man who systematises Baconian materialism."<sup>1</sup>

But "in its further evolution, materialism becomes one-sided." Where Bacon had expounded the principles of scientific method, and had left it to the future development of science to elaborate the theory of the constitution of the universe and the nature of man, Hobbes laid down a system of hard and fast metaphysical principles.

With Hobbes, wrote Marx, "knowledge based upon the senses loses its poetic blossom, it passes into the abstract

<sup>1</sup> Quoted by Engels in the Introduction to *Socialism, Utopian and Scientific*.

experience of the mathematician; geometry is proclaimed as the queen of the sciences. Materialism takes to misanthropy. If it is to overcome its opponent, misanthropic fleshless spiritualism, and that on the latter's own ground, materialism has to chastise its own flesh and turn ascetic. Thus, from a sensual, it passes into an intellectual entity; but thus too it evolves all the consistency, regardless of consequences, characteristic of the intellect."

Hobbes took as his starting point Bacon's principle that all knowledge is furnished through the senses.

"Concerning the thoughts of man," he wrote, ". . . the original of them all is that which we call sense; for there is no conception in a man's mind which hath not at first, totally or by parts, been begotten upon the organs of sense. The rest are derived from that original."<sup>1</sup>

"The cause of sense," he continued, "is the external body, or object, which presseth the organ proper to each sense, either immediately, as in the taste and touch, or mediately, as in hearing, seeing and smelling."

The action of external objects upon the sense organs produces in the mind what Hobbes called variously "seemings" or "apparitions" or "fancies"—the sensations of light, colour, sound, odour, hardness, softness, etc.—"all which qualities called *sensible* are in the object that causeth them but so many several motions of the matter by which it presseth our organs diversely. Neither in us that are pressed are they anything else but diverse motions, for motion produceth nothing but motion. But their appearance to us is fancy, the same waking as dreaming."

Thus: "Whatsoever accidents or qualities our senses make us think there be in the world, they be *not* there, but are *seeming* and *apparitions* only; the things that really *are* in the world without us are those motions by which these seemings are caused."<sup>2</sup>

So for Hobbes that which really exists, and which *appears* to us through our senses as clothed in the appearance of sensible qualities, is *matter—body*. Nothing else exists. The world consists of bodies, their motions and mechanical interactions.

<sup>1</sup> Hobbes: *Leviathan*, I, 1.

<sup>2</sup> Hobbes: *Human Nature*, 2.



Hobbes defined body, or matter, with reference to the property of existing objectively in space, external to and independent of our consciousness. Our consciousness, indeed, was for him only an "appearance" or "apparition" arising from the interactions of bodies.

"The word body," he wrote, "signifieth that which filleth or occupieth some certain room or . . . place; and dependeth not on the imagination, but is a real part of that we call the universe. For the universe, being the aggregate of all bodies, there is no real part thereof that is not also body; nor anything properly a body, that is not also part of that aggregate of all bodies, the universe."<sup>1</sup>

By the way, the metaphysical character of Hobbes' materialism showed itself, among other things, in his equation of *matter* with *body*. For modern dialectical materialism, matter is "the objective reality which is given to man by his sensations," and "the sole property of matter with whose recognition philosophical materialism is bound up is the property of being an objective reality, of existing outside our mind." (Lenin, *Materialism and Empirio-Criticism*.) The mode of existence of matter is motion, and space and time are the essential forms of the existence of matter. (Engels, *Anti-Duhring*.) Equating matter with body, Hobbes regarded particular properties of material objects—hardness, impenetrability, etc.—as the essential properties of matter, of all reality existing outside the mind; he separated space from matter, although he regarded the whole of space as being filled with bodies; and he separated matter from motion. For Hobbes, bodies were always in motion, but he regarded this motion as being of an external kind, consisting of the collisions and interactions of separate bodies one with another. Matter was devoid of internal motion, of self-motion; body was changeless, and always remained exactly the same.

From this standpoint Hobbes went on to develop some theories about the nature of knowledge, and of thought.

All knowledge must relate to the properties and motions of bodies, derived from what we can learn about them through the medium of the senses.

Thought is impossible without a body that has sensations

<sup>1</sup> Hobbes: *Leviathan*, II, 34.

and thoughts, and it consists in a train of ideas derived from sense-impressions. More exactly, thought consists in the significant conjunction of *words*. We attach different words to the different bodies and properties of bodies that we perceive, and so by joining words together in sentences and strings of sentences we signify various facts about the motions and properties of bodies.

From this follow important consequences about the significance and insignificance of thoughts, or sentences. For when we join words in a way that contradicts the nature of the things signified, the result is not *untrue* thoughts, but *insignificant* thoughts, or nonsense—as “round quadrangle,” “immaterial substance,” or “free will.”<sup>1</sup>

For instance, to make assertions about “immaterial substance” or “free will” is not to speak untruth, but rather to speak insignificant nonsense—just as it is obviously nonsense to speak of a “round quadrangle.” Hobbes here developed a powerful weapon of criticism against all previous dogmatic, spiritualist or idealist philosophy. “Substance and body,” he wrote, “signify the same thing; and therefore substance incorporeal are words which when they are joined together destroy one another, as if a man should say an incorporeal body.”<sup>2</sup>

From all this immediately follows further the openly anti-religious and atheistical character of Hobbes’ materialism. Religion was explained as the mechanical product of human ignorance and fear; and God—a being “incorporeal,” “infinite,” “omnipotent,” etc.—was absolutely incomprehensible.<sup>3</sup>

### 3. THE PROOF THAT KNOWLEDGE DERIVES FROM SENSE-EXPERIENCE—LOCKE

The work of Bacon and Hobbes was further continued by John Locke, the third great English materialist.

“Hobbes had systematised Bacon,” Marx wrote, “without however furnishing a *proof* for Bacon’s fundamental principle, the origin of all human knowledge from the world of sensation.

<sup>1</sup> Hobbes: *Leviathan*, I, 5.

<sup>2</sup> *Ibid.*, II, 34.

<sup>3</sup> *Ibid.*, I, 12.

It was Locke who, in his *Essay on the Human Understanding*, supplied this proof.”<sup>1</sup>

Locke began his *Essay* by attacking all theories that knowledge is derived from some inner light and not exclusively from sensation and experience. He opened with an onslaught against “innate ideas”—the doctrine that certain ideas, such as God, substance, cause, etc., are innate in the human mind, not derived from experiential sources, and self-evidently true. As against the doctrine of innate ideas, he tried to show in elaborate detail how the whole of human knowledge is built up through the action of external material objects upon the bodily sense organs.

“Let us suppose,” Locke wrote, “the mind to be, as we say, white paper, void of all characters, without any ideas; how comes it to be furnished? . . . To this I answer in one word, from experience; in all that our knowledge is founded, and from that it ultimately derives itself. Our observation employed either about external sensible objects, or about the internal operations of our minds, perceived and reflected upon by ourselves, is that which supplies our understandings with all the materials of thinking. These two are the fountains of knowledge, from whence all the ideas we have, or can naturally have, do spring.”<sup>2</sup>

According to Locke, the action of external objects upon our sense organs produces, in the first place, “simple ideas,” the elementary sense-data supplied by each of the special senses. These simple ideas are the atoms, so to speak, from which the whole complex of knowledge is built. They form “the materials of all our knowledge.”<sup>3</sup>

“When the understanding is once stored with these simple ideas,” wrote Locke, “it has the power to repeat, compare and unite them, even to an almost infinite variety; and so can make at pleasure new complex ideas. But it is not in the power of the most exalted wit, or enlarged understanding, by any quickness or variety of thought, to invent or frame one new simple idea in the mind.”<sup>4</sup>

Locke then distinguished simple ideas which, as he asserted,

<sup>1</sup> Quoted by Engels in the Introduction to *Socialism, Utopian and Scientific*.

<sup>2</sup> Locke: *Essay on the Human Understanding*, II, 1, 2.

<sup>3</sup> *Ibid.*, II, 2, 2.

<sup>4</sup> *Ibid.*

were exact resemblances of qualities really inhering in the bodies which evoked those ideas; and simple ideas to which nothing in the external world exactly corresponded.

The former he called ideas of *Primary Qualities*; the latter he called ideas of *Secondary Qualities*.

Thus our ideas of solidity, extension, figure, motion or rest, and number, were ideas of primary qualities, corresponding exactly to the real solidity, extension, figure, motion or rest, and number, of the objects of the external material world.

But our ideas of colour, taste, smell, sound, were ideas of secondary qualities only, not corresponding to any real colour, taste, smell, sound, inhering in external material objects.

"The ideas of primary qualities of bodies," Locke wrote, "are resemblances of them, and their patterns do really exist in the bodies themselves; but the ideas produced in us by these secondary qualities, have no resemblance to them at all. There is nothing like our ideas existing in the bodies themselves. They are in the bodies we denominate from them, only a power to produce those sensations in us; and what is sweet, blue, warm in idea, is but the certain bulk, figure, and motion of the insensible parts in the bodies themselves, which we call so."<sup>1</sup>

It will be seen that in all this what Locke was doing was to elaborate the basic principles of his materialist predecessor, Hobbes. Bourgeois textbooks of the history of philosophy generally overlook completely the fact that Locke's philosophy was a continuation of the materialism of Bacon and Hobbes, and instead regard Locke as beginning an entirely new trend of thought; for they like to pretend that materialism has no significant place in the history of modern thought, and they would like to dispose of materialism by ignoring it. Locke's "theory of ideas," however, essentially represented the highest elaboration of the English materialism of the 17th century. This elaboration reflected the development of the English bourgeois revolution itself. Bacon belonged to the end of the Tudor period, when manufactures and science were rising fast, but still under the wing of the court and the nobility. Hobbes belonged to the period of the Stuart monarchy, of the Commonwealth and of the restored monarchy under

<sup>1</sup> Locke: *Essay on the Human Understanding*, II, 8, 15.

Charles II; his materialism was regarded as dangerous by Charles I and his followers, he himself had no sympathy for the Puritans and the Commonwealth, but he came into his own and was established as a court philosopher under Charles II, the patron of the Royal Society. Finally, Locke was the philosopher of the "glorious" bourgeois revolution of 1688, whose principles he formulated. Thus in developing the materialist views of his predecessors to their conclusion, Locke also provided the starting point for a new chapter in the history of bourgeois philosophy.

#### 4. WHAT IS THE OBJECT OF KNOWLEDGE?

In proceeding to the further elaboration of his theory, Locke made an assumption which proved to be of the very greatest importance.

Namely, he maintained that when we perceive, think, understand, judge, know, in other words, when we carry out any act of cognition from the simplest sort of sense-perception to the most complicated thought, then the *objects* of our cognition are not external objects themselves, but are rather *our own ideas* which are called up in our minds by the action of external objects.

This assumption is made in his initial definition of the term "idea," which he defined as "that term which, I think, serves best to stand for whatsoever is the *object* of understanding when a man thinks."<sup>1</sup>

In dealing with the development of knowledge, Locke proceeded to say: "Since the mind, in all its thoughts and reasonings, hath no other immediate object but its own ideas, which it alone does or can contemplate, it is evident that our knowledge is only conversant about them. Knowledge, then, seems to me to be nothing but the perception of the connexion and agreement, or disagreement and repugnancy, of any of our ideas. In this alone it consists."<sup>2</sup>

The perceptions, thoughts and knowledge of man, therefore, are confined within the circle of his own ideas. It is ideas, not things, that we "contemplate" or are "conversant about."

But since ideas were originally caused through the action

<sup>1</sup> Locke: *Essay on the Human Understanding*, I, 1, 8.

<sup>2</sup> *Ibid.*, IV, 1, 1-2.

of real external objects, Locke thought that nevertheless knowledge *does* relate to the objective world, in so far as ideas are *copies* of things. "It is evident that mind knows not things immediately, but only by the intervention of the ideas it has of them. Our knowledge therefore is real only so far as there is conformity between our ideas and the reality of things."<sup>1</sup>

But this means that our knowledge of the nature of things is necessarily very limited. Thus because we can be "conversant" only with our ideas of bodies, and not with bodies themselves, "therefore I am apt to doubt, that how far soever human industry may advance useful and experimental philosophy in physical things, scientific will still be out of our reach; because we want perfect and adequate ideas of those very bodies which are nearest to us, and most under our command."<sup>2</sup>

In particular, as to what is the *substance* of real things, we must remain for ever ignorant.

Gone is Hobbes' easy assurance that in saying that the universe consisted in bodies, he had expressed the general nature of the universe. According to Locke, when we repeatedly find a group of simple ideas associated together, then "we accustom ourselves to suppose some substratum wherein they do subsist, and from which they do result; which therefore we call substance."<sup>3</sup> But what the nature of this substance is, our ideas do not inform us. They only indicate to us that substances exist, which are the ultimate cause of our ideas. "If anyone will examine himself concerning his notion of pure substance in general, he will find he has no other idea of it at all, but only a supposition of he knows not what support of such qualities, which are capable of producing simple ideas in us."<sup>4</sup>

"The secret, abstract nature of substance" is necessarily unknown to us. "The idea of corporeal substance or matter is as remote from our conceptions and apprehensions, as that of spiritual substance or spirit."<sup>5</sup>

<sup>1</sup> Locke: *Essay on the Human Understanding*, IV, 4, 3.

<sup>2</sup> *Ibid.*, IV, 3, 26.

<sup>3</sup> *Ibid.*, II, 23, 1.

<sup>4</sup> *Ibid.*, II, 23, 2.

<sup>5</sup> *Ibid.*, II, 23, 5.

Thus with Locke a position was reached, which he derived from the original materialist principle that all knowledge is based upon experience, according to which the object of our knowledge is not the objective external material world, but the subjective world of our own ideas.

The scope of our knowledge is limited to the perception of the order and arrangement, agreement and disagreement, of our own ideas. Behind our ideas, so to speak, and causing them, is the real material objective external world. But of the nature of the objects that constitute this world, we can know nothing. They are, to use a phrase coined a hundred years after Locke, unknowable "things in themselves."

At the same time, and certainly inconsistently, Locke maintained that, to a certain extent, our ideas are true copies of real things, and to that extent we do know what "things in themselves" are like; namely, our ideas of solidity, extension, figure, motion and number are true representations of the real solidity, extension, figure, motion and number of objective things.

(Incidentally, it is interesting to note that Locke used his doctrine of the unknowability of substance—a thesis which has often since his time been used as a basis for all manner of idealism and mysticism—as an argument in favour of a materialist view of the world. In one passage he argued against the dogma that "spiritual substance" must have an existence independent of matter, by saying that, since we do not in any case know what the real nature of matter is, therefore it is perfectly possible "that matter thinks."<sup>1</sup>)

## 5. A PARTING OF THE WAYS

With Locke, English materialism reached a parting of the ways.

On the one hand, his insistence that the object of knowledge is the world of our own ideas, and that the substance of objective things is unknowable, led away from materialism, to subjective idealism and agnosticism.

On the other hand, his insistence that all knowledge is the product of sense-experience; that sensation is caused by the action of external objects on the bodily sense organs; that

<sup>1</sup> Locke: *Essay on the Human Understanding*, IV, 3, 6.

our ideas, at least of primary qualities, are copies of real things; led to the further development of materialism. And this further development was principally undertaken by the great French materialists of the 18th century, whose heritage was in turn studied and developed in the 19th century by Marx and Engels.

Locke's doctrine of ideas was in fact inconsistent, and so led to contradictory results according to which side of his inconsistency was stressed, and which side was criticised.

On the one hand, he could be criticised in that, having said that knowledge was limited to the world of our own ideas, he nevertheless allowed ideas to be represented as the product of the action of external objects, and to be copies of such objects. For if only our own ideas are the objects of our knowledge, how can we possibly know whence those ideas arise, or of what they are copies?

On the other hand, he could be criticised in that, having said that our ideas are the products of the action of external objects and are copies of such objects, he nevertheless maintained that knowledge is limited to the relations between ideas, and that the substance of objective things is unknowable.

How did Locke's theory come to involve such inconsistencies, leading to such contradictory lines of criticism, and contradictory tendencies of future development arising—which were certainly not apparent in the work of his materialist predecessors, Bacon and Hobbes?

As has been shown, Locke was the man who first tried to develop in detail the fundamental materialist theory of knowledge of Bacon and Hobbes; and it was in the manner of this detail development that the inconsistencies arose.

In working out this detail theory, Locke made certain rigid and hard and fast distinctions. In particular:—

(1) He rigidly distinguished the sensation or idea produced in the mind, from the external object on the one hand, and from the act of cognition on the other hand; so that for him "ideas" seemed to exist as a set of sensible or mental *objects* standing between the knowing mind and the external material world.

(2) He rigidly distinguished the substance of a thing from the totality of its properties, so that while the properties might



be known, the substance remained as some unknown "support" of such properties. The substance or being was abstracted from the thing's life-history, and set up as a separate unknowable existence distinct from the totality of happenings, relationships and properties.

(3) He rigidly distinguished theory from practice, knowing from doing, so that it appeared that while a man might in his practical life be busily engaged with material things, in his theoretical activity he was not engaged with material things at all, but with his own ideas.

It was from such rigid distinctions and abstractions, that the difficulties and inconsistencies arose.

The setting up in thought of such hard and fast antitheses which do not exist in fact is what, since the time of Hegel, has come to be called the "metaphysical" mode of thought. Locke inherited this habit of thought from the whole previous development of both philosophy and science. And where it led him in the development of English materialism shows that the whole subsequent forward development of materialism has to be along the lines of overcoming such narrow metaphysics. It was Marx and Engels who subsequently succeeded in finally freeing materialism from metaphysics.

## CHAPTER 2

### MATERIALISM AND THE RISE OF CAPITALISM

#### 1. SOCIAL ROOTS OF 17TH CENTURY MATERIALISM— MATERIALISM AS THE VINDICATION OF SCIENCE

THIS materialist movement of philosophy did not arise and flourish on British soil through any accident. On the contrary, it was the early rise of capitalism in Britain, and the break-up of every form of feudal institution and ideology through the irresistible growth of capitalist relationships within the old system, that provided the soil for this materialist philosophy.

This philosophy smashed the old scholastic forms of thought, which had to be overcome if the spirit of science, invention and discovery, so necessary for the development of capital, was to hold sway. Its function was to justify the methods of natural science, which it did by showing how all knowledge must arise from experience and be tested by experience, and how on this basis a systematic and verifiable account of the nature of things, including the human mind, could be reached.

Thus this philosophy did not present any comprehensive cosmological theory, as was the manner of ancient philosophies and also of the contemporary Cartesian theories on the Continent—but it confined itself mainly to the elaboration of a theory of knowledge. By this theory it smashed the world outlook of feudal rulers and monks, in order to establish the world outlook of the owners of capital and of bourgeois scientists.

The rise of natural science was one of the outstanding features of the period of the break-up of feudalism and the establishment of the foundations of the future capitalist order. It was called forth and conditioned by such factors as the development of navigation, the development of mining, and the use of artillery in warfare. Such fields of new activity necessarily called forth scientific researches, and demanded the aid of scientific research if they were to be successfully exploited.

The new science met with the most bitter opposition from the established church philosophy. More than that, scientists were often met with persecution by Protestant no less than by Catholic authorities. Nevertheless science was able to triumph over this opposition and persecution. And this triumph was inevitable, because science was serving the needs of expanding social production and of the new rising social class, the capitalists.

The new capitalist forms of production and trade developed within the social framework of feudalism. In the course of a long series of revolutions the capitalists first established their right to live and to expand their capital and activities within feudal society, and finally destroyed feudal society altogether, and set up their own class rule.

In this struggle they not only disrupted feudal forms of property and feudal forms of government, in order to establish capitalist property and capitalist government; but they brought about the destruction of the whole complex of religious and philosophic beliefs associated with feudalism, in order to establish the dominance of new religious and philosophic beliefs that accorded with the requirements of capitalism.

The rise of natural science, and the adoption of scientific views about the world, was a most important part of the new culture created by the rise of capitalism. The expansion of capital necessarily created a new scientific culture, because it demanded the services of science to aid its expansion. And with equal necessity, science came into conflict with the dominant ideas of feudal philosophy and theology, fought them, and overthrew them.

"The revolutionary act," wrote Engels, "by which natural science declared its independence and, as it were, repeated Luther's burning of the Papal Bull, was the publication of the immortal work by which Copernicus, though timidly, and, so to speak, only from his deathbed, threw down the gauntlet to ecclesiastical authority in the affairs of nature. The emancipation of natural science from theology dates from this act, although the fighting out of the particular antagonistic claims has dragged out up to our day, and in many minds is still far from completion. Thenceforward, however, the development of the sciences proceeded with giant strides, and,

it might be said, gained in force in proportion to the square of the distance (in time) from its point of departure. It was as if the world were to be shown that henceforth the reciprocal law of motion would be as valid for the highest product of organic matter, the human mind, as for inorganic substance.”<sup>1</sup>

The philosophy of Bacon, at the start of the 17th century, declared science to be not only independent of any ecclesiastical authority, but the one sure road to natural knowledge, all theories based on a-priori principles or on traditional authorities being declared worthless. And the philosophy of Locke, at the end of the 17th century, completed the revolutionary work of Bacon by its detailed examination of the sources of human knowledge.

To summarise, then. The English materialism of the 17th century was essentially a philosophical vindication of the claims of natural science, and an attack upon the claims of a-priori theorising and reliance on traditional authority in the interpretation of nature. In opposition to the discredited feudal categories, it began to elaborate the mechanistic categories for the interpretation of nature which were to constitute the hallmark of the bourgeois scientific outlook. This philosophy was a consequence of the rise and struggle to power of the new bourgeoisie, the bourgeois landowners and manufacturers—commencing with Bacon, when they were already a powerful social force, culminating with Locke, when they had attained to full political power.

## 2. THE CONFLICT OF SCIENCE AND RELIGION

But while the rise of the capitalists called forth a scientific culture and led to the triumph of science over church authority, the capitalists at the same time clung to religion and their own reformed church.

The political struggles in the course of which the foundations of the capitalist order were established in England were fought under religious slogans—Protestants against Catholics, Presbyterians and Independents against High-Churchmen. Anything savouring of atheism was utterly abhorrent, and regarded as socially dangerous and disruptive to the highest

<sup>1</sup> Engels: *Dialectics of Nature*, Introduction.

degree. It is a noteworthy fact that atheistical theories made their appearance amongst the Levellers at the time of the Civil War in England, and were duly suppressed along with the whole Levellers' Movement. For while the owners of capital, in the most revolutionary way, set out to destroy feudal forms of ownership and feudal institutions and ideas, they took great care at the same time that the social position of privileged classes should remain secure. Church and State, they realised, must remain the pillars of society. And while for the short period of the Commonwealth both the Monarchy and the Church were abolished, they were very soon afterwards re-established, and moulded in the "glorious revolution" of 1688 into the form most in keeping with the interests and desires of big capital.

This consistent and deep-seated regard for religion on the part of the English capitalists had its inevitable reflection in the philosophic movement.

English philosophy set out to justify the claims of natural science. But the great social movement which produced it, set it also another task. The very same social forces which desired to extend the bounds of scientific knowledge, desired also to uphold religion and the Christian Church. And so the question arose of both upholding the independence of science as against religious authority, and at the same time of reconciling science with religion.

Thus philosophy had the dual task—on the one hand to uphold science as against the dogmas of Catholicism; on the other hand to show that science gave no support for atheism, was not incompatible with belief in God and Immortality, and in general harmonised very well with the more liberal doctrines of the Church of England.

With Bacon there was as yet no hint of any awareness that scientific materialism must come into conflict with religion. Conflict with the "absurd" dogmas of the Catholic schoolmen there certainly was—but not with the essential beliefs of the Christian religion as preached by the reformed Church. As befitted his position as Lord Chancellor under King James I, Bacon had to uphold science as an essential aid to commerce and manufacture, and to uphold religion as an essential element of social security—and that the two might conflict

did not occur to him. Thus as Marx observed of Bacon, "the aphoristically formulated doctrine pullulates with inconsistencies imported from theology." Bacon did not pursue the detail development of his philosophy sufficiently far to come upon any conflict between science and theology.

But with Hobbes, the existence of a real and fundamental conflict became immediately obvious.

In the political part of his philosophy (which occupied the greater part of his main book, the *Leviathan*), Hobbes attempted to deduce from his materialist premises the necessity of (a) the Monarchy and (b) the Church, as indispensable elements in the organisation of civil society. Without these two elements, he said, government would be impossible.

But for all that, his philosophy was glaringly anti-religious.

The universe consists of bodies; everything that happens results from the mechanical interaction of bodies; consciousness is merely "a phantom" of material events; to speak of God is to use a word utterly meaningless and incomprehensible; there is no possible evidence for religion, which is merely a mechanical product of man's ignorance and fear. With such doctrines, Hobbes might deduce as convincingly as he liked that religion was politically necessary and desirable as a binding force in society, but his doctrines were destructive of religion. Religion cannot in practice be upheld as a political expedient if at the same time people are taught not to believe in its truth.

Hobbes had shown where Bacon's doctrine consistently led. A scientific view of the world, which explains everything through natural causes, must regard matter as the prior reality, and spirit as only secondary. It leaves no room for religious beliefs. It banishes the supernatural from the world, and reveals it as mere superstition.

The very consistency with which Hobbes developed the Baconian doctrine to its logical conclusion in atheistical materialism, completely alienated him from the rising capitalist forces, that is, from the main forces of progress. His philosophy was generally denounced, and won support only from those who were antagonistic to capital; on the one hand, certain elements amongst the Levellers; on the other hand, a few of the more cynical and disillusioned of the old aristocracy.

## 3. THE PROBLEM OF RECONCILING SCIENCE AND RELIGION

Hobbes, however, had raised a problem which had to be solved.

The new capitalist society then in process of formation could no more do without science than it could do without religion. Hobbes had apparently shown that the acceptance of the principles and methods of science led to a view of the world in which religious beliefs had no place. This challenge had to be answered. And it was Locke's *Essay on the Human Understanding*, published at the very moment when the capitalists finally rose to supreme power, which showed how to answer it. In working out in elaborate detail just how human knowledge was founded on sense-experience, Locke showed how you could both accept science and at the same time leave plenty of room over for religious beliefs.

Locke was, indeed, very well aware of this problem which he had to answer. "The motive of Locke's philosophy is explained by him as follows. 'Five or six friends' used to meet regularly, while he was staying at Exeter House, to discuss the 'principles of morality and religion. They found themselves quickly at a stand by the difficulties that arose on every side.' It consequently occurred to him 'that before we set ourselves upon enquiries of that nature, it was necessary to examine our own abilities, and see what objects our understandings were or were not fitted to deal with.'"<sup>1</sup>

The solution which Locke found to the conflict between science and religion lay precisely in his insistence, which we have already noted, that the immediate object of knowledge consists in our own ideas, not the objective world external to consciousness.

How did this principle supply a basis for the solution of the conflict between science and religion?

Precisely because it *limited* the sphere of possible scientific knowledge, and denied that scientific knowledge could penetrate to the *substance* of things. If that is so, then the immortality of the soul, its salvation, and its relationship with God, cannot possibly be discovered by any possible application of scientific observation and inference—but nor can they be

<sup>1</sup> A. Wolf: *History of Science, Technology and Philosophy in the 16th and 17th Centuries*, p. 656.

overthrown. Scientific knowledge and religion each has its own proper sphere, and they do not encroach on one another. Science deals with the agreements and disagreements which we observe in the order of our own ideas; religion deals with transcendent truths, which cannot be either demonstrated or refuted by methods of scientific observation, experiment and inference. Thus two quite separate and distinct worlds are posited—the world of science, a world of mechanistic causality, with which we are concerned in our sense-perceptions and normal bodily activities; and the world of religion, a world of spiritual freedom, with which we are concerned in our moral and spiritual life.

Locke, however, rather stumbled upon this ingenious mode of reconciling science and religion, than consistently and systematically developed it. On the contrary, in one chapter of his *Essay* he tried to develop a scientific "proof" of the existence of God; and at the same time his philosophy continued to embody strong materialist elements taken straight from Hobbes, according to which all our thoughts were the mechanical results of the action of external material things on our sense organs, and our sensations were copies of a real world consisting of solid extended particles.

The reconciliation of science and religion, therefore, as it was worked out by Locke, rested on a very shaky basis. And the comfort to religion derived from the doctrine that science "only" deals with what we can observe of our own sensations and can establish nothing of the substance of the real world, was continually disturbed by the contrary doctrine that our sensations are copies of things, that science therefore does after all relate to the real world and is continually finding out more about it, and that science thereby presents a picture of the world in which the objects of religion have no place.

Locke's doctrine of ideas, however, had started a train of thought which was destined resolutely to cast off all such materialist impediments. George Berkeley, then a young student at Trinity College, Dublin, seized upon the vaguely formulated suggestions contained in Locke's *Essay*, and from them formulated a set of philosophical principles which in the most direct and simple way proclaimed that henceforth science and religion could coexist in harmony.



## CHAPTER 3

### FROM MATERIALISM TO SUBJECTIVE IDEALISM: BERKELEY

#### I. DOES "THE EXTERNAL WORLD" EXIST?

THE full title of Berkeley's principal philosophical work was: *A Treatise concerning the Principles of Human Knowledge, wherein the chief causes of error and difficulty in the sciences, with the grounds of scepticism, atheism and irreligion, are inquired into.*

Thus in the very title of his work Berkeley proclaimed, with the clarity and simplicity that was characteristic of him, that his purpose was to deal with the relations of science and religion, and to remove those "errors" in the concept of science which appeared to involve anti-religious consequences. The reconciliation of science and religion was his first avowed object.

In pursuit of this object, Berkeley proceeded to make a frontal attack upon the Lockean conception of matter.

Locke had maintained:

(a) That the "immediate objects" of knowledge are our own ideas.

But (b) that these ideas are produced by the action upon us of external material things, and that at least our ideas of "primary qualities" are copies of the qualities of external bodies.

Berkeley accepted the first proposition (a), and then set out to prove that the materialist addition (b) was absurd.

"It is evident to any one who takes a survey of the objects of human knowledge," he wrote, "that they are either ideas actually imprinted on the senses; or else such as are perceived by attending to the passions and operations of the mind; or lastly, ideas formed by the help of memory and imagination. . . ."<sup>1</sup> And he continued: "That neither our thoughts, nor passions, nor ideas formed by the imagination, exist

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 1.

without the mind is what everybody will allow. And to me it seems no less evident that the various sensations or ideas imprinted on the senses, however blended or combined together (that is whatever objects they compose) cannot exist otherwise than in a mind perceiving them."<sup>1</sup>

Figure, extension and solidity, no less than colour, sound and smell, are, Berkeley argued, presented to us as sensations of the mind; and when we perceive any sensible object, what we are actually aware of is nothing but the existence in our consciousness of a certain combination of such sensations, which "cannot exist otherwise than in a mind perceiving them."

What can be meant, then, Berkeley asked, by the existence of a material object, external to the perceiving mind, corresponding to our sensations?

"The table I write on," he said, "exists; that is, I see and feel it: and if I were out of my study, I should say it existed; meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it. There was an odour, that is, it was smelt; there was a sound, that is, it was heard; a colour or figure, and it was perceived by sight or touch. That is all that I can understand by these and the like expressions."<sup>2</sup>

"It is indeed an opinion strangely prevailing amongst men," he continued, "that houses, mountains, rivers, and in a word all sensible objects, have an existence, natural or real, distinct from their being perceived by the understanding. . . . For what are the forementioned objects but the things we perceive by sense? and what do we perceive besides our own ideas or sensations? and is it not plainly repugnant that any one of these, or any combination of them, should exist unperceived?"<sup>3</sup>

Berkeley went on to argue against the Lockean materialist conception that our ideas are copies of the qualities of external material things.

"I answer," he said, "an idea can be like nothing but an idea; a colour or figure can be like nothing but another

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 3.

<sup>2</sup> *Ibid.*, 3.

<sup>3</sup> *Ibid.*, 4.

colour or figure. . . . Again, I ask whether these supposed originals, or external things, of which our ideas are the pictures or representations, be themselves perceivable or no? If they are, then *they* are ideas, and we have gained our point; but if you say they are not, I appeal to any one whether it be sense to assert a colour is like something which is invisible; hard or soft like something that is intangible; and so of the rest."<sup>1</sup>

Berkeley was able very soon to dispose of the distinction of "primary" and "secondary" qualities, that is, of Locke's doctrine that extension, figure, solidity, etc., inhere in material things independent of the mind, whereas colour, sound, smell do not.

"I desire anyone to reflect," he said, "and try whether he can, by any abstraction of thought, conceive the extension and motion of a body without all other sensible qualities. For my own part, I see evidently that it is not in my power to frame an idea of a body extended and moving, but I must withal give it some colour or other sensible quality, which is acknowledged to exist only in the mind. In short, extension, figure and motion, abstracted from all other qualities, are inconceivable. Where therefore the other sensible qualities are, there must these be also, to wit, in the mind, and nowhere else."<sup>2</sup>

The supposition of the existence of sensible material objects, external to the mind and independent of being perceived, was then for Berkeley an altogether meaningless abstraction. "For can there be a nicer strain of abstraction," he asked, "than to distinguish the existence of sensible objects from their being perceived, so as to conceive them existing unperceived? Light and colours, heat and cold, extension and figures—in a word the things we see and feel—what are they but so many sensations, notions, ideas or impressions on the sense? and is it possible to separate, even in thought, any of these from perception? For my part, I might as easily divide a thing from itself."<sup>3</sup>

As for Locke's conception of matter, or material substance, as the really existing "substratum" which "supports" the

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 8.

<sup>2</sup> *Ibid.*, 10.

<sup>3</sup> *Ibid.*, 5.

various qualities of material things, Berkeley asserted that this was a completely meaningless and incomprehensible abstraction.

"If we inquire into what the most accurate philosophers declare themselves to mean by material substance, we shall find them acknowledge they have no other meaning annexed to those sounds but the idea of Being in general. . . . The general idea of Being appeareth to me the most abstract and incomprehensible of all other. . . . So that when I consider the two parts or branches which make the signification of the words material substance, I am convinced there is no distinct meaning annexed to them."<sup>1</sup>

Here, incidentally, the tables are indeed turned upon Hobbes' assertion that "substance incorporeal" is a meaningless expression: it is "material substance" that is now asserted to be a meaningless combination of words. In this assertion Berkeley first formulated the contention, which has been repeated so many times since, that "matter," "the external material world," "the existence of real material things and events which cause our sensations," etc., are meaningless abstractions; and that to use such words is to use expressions to which "there is no distinct meaning annexed." Materialism is asserted to be a doctrine based on unintelligible abstraction, confused, meaningless, nonsensical.

Finally, Berkeley asserted: "If there were external bodies, it is impossible we should ever come to know it; and if there were not, we might have the very same reasons to think there were as we have now."<sup>2</sup> For since all we can perceive are sensible objects, or combinations of sensible qualities, which have no existence outside the mind, there can be no possible grounds for inferring from the existence of these to the existence of other unknown things external to the mind.

## 2. BERKELEY'S CONCLUSION—RELIGION VINDICATED, ATHEISM DESTROYED

From all this, the conclusion follows: "Some truths there are so near and obvious to the mind that a man need only open his eyes to see them. Such I take this important one

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 17.

<sup>2</sup> *Ibid.*, 20.

to be, viz., that all the choir of heaven and furniture of earth, in a word all those bodies which compose the mighty frame of the world, have not any subsistence without a mind; that their being is to be perceived or known; that consequently so long as they are not actually perceived by me, or do not exist in my mind, or that of any other created spirit, they must either have no existence at all, or else subsist in the mind of some Eternal Spirit: it being perfectly unintelligible, and involving all the absurdity of abstraction, to attribute to any single part of them an existence independent of a spirit."<sup>1</sup>

Berkeley hastened to defend himself against the imputation that there was anything paradoxical, or contrary to common sense and experience, about this conclusion.

"Ideas imprinted on the senses are real things, or do really exist: this we do not deny; but we deny that they can subsist without the minds that perceive them. . . . It were a mistake to think that what is here said derogates in the least from the reality of things. . . . We detract nothing from the received opinion of their reality, and are guilty of no innovation in this respect. All the difference is that, according to us, the unthinking things perceived by sense have no existence distinct from being perceived. . . . Whereas philosophers vulgarly hold that the sensible qualities do exist in an inert, extended unperceiving substance which they call Matter, to which they attribute a natural subsistence, exterior to all thinking beings, or distinct from being perceived by any mind whatsoever, even the Eternal Mind of the Creator."<sup>2</sup>

But while the concept of matter has no basis in experience, its chief use is as an aid to the enemies of religion.

"How great a friend Material Substance has been to Atheists in all ages were needless to relate. All their monstrous systems have so visible and necessary a dependence on it, that when this corner-stone is removed, the whole fabric cannot choose but fall to the ground; insomuch as it is no longer worth while to bestow a particular consideration on the absurdities of every wretched sect of Atheists."<sup>3</sup>

On the other hand, the articles of the Christian faith can

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 6.

<sup>2</sup> *Ibid.*, 90, 91.

<sup>3</sup> *Ibid.*, 92.

be much more readily accepted, once the prejudice of the existence of matter is removed.

"For example, about the Resurrection, how many scruples and objections have been raised by Socinians and others? But do not the most plausible of them depend on the supposition that a body is denominated the same, with regard not to the form or that which is perceived by sense, but the material substance, which remains the same under several forms? Take away this material substance—about the identity whereof all the dispute is—and mean by body that which every plain ordinary person means by that word, to wit, that which is immediately seen and felt, which is only a combination of sensible qualities and ideas: and then their most unanswerable objections come to nothing."<sup>1</sup>

Indeed, "Matter being once expelled out of nature drags with it so many sceptical and impious notions, such an incredible number of disputes and puzzling questions, which have been thorns in the sides of divines as well as philosophers, and made so much fruitless work for mankind, that if the arguments which we have produced against it are not found equal to demonstration (as to me they evidently seem) yet I am sure all friends of knowledge, peace and religion have reason to wish they were."<sup>2</sup>

### 3. SUBJECTIVE IDEALISM

Berkeley reached these idealistic conclusions, viz.: "That all the choir of heaven and furniture of earth . . . have not any subsistence without a mind," by means of an apparently very strict adherence to the original principle of his materialist predecessors, that sensation is the source of all knowledge.

He was as much opposed to a-priori speculations, and as much convinced that knowledge advances through experience, observation and experiment, as were Bacon, Hobbes and Locke. Only he argued that the objects of knowledge being our own ideas, dependent upon the mind, there is no such thing as the external material world—and if there were, we could still know nothing whatever about it.

The doctrine that sensation is the source of all knowledge

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 95.

<sup>2</sup> *Ibid.*, 96.

is denoted by the name Empiricism. Thus Berkeley followed Bacon, Hobbes and Locke in their empiricism, but rejected their materialism in favour of subjective idealism. By this rejection, however, his empiricism became inconsistent and deceptive.

Materialism must always take up an empiricist standpoint as regards knowledge. Materialism holds that knowledge is derived from sensation. It understands sensation as the beginning of knowledge—but of knowledge of what? Of knowledge of the real material world outside us. For materialism, sensation arises from the action of external material objects upon the sense-organs; and so our ordinary perceptions, and the knowledge gained by tested scientific methods, give a true account of what is going on in the external material world, and of the laws of motion of material things. For materialism, knowledge arises from the interaction between man and the material objects that surround him. This is the only consistent empiricism.

Berkeley, on the other hand, while agreeing that all knowledge is derived from sensation, denied that sensations reflect or image external material reality. For him sensations led to knowledge of nothing whatever besides sensations themselves. He agreed that sensations were the source of our knowledge, and then denied the very possibility of knowledge of which they were the source.

Berkeley threw over materialism in favour of subjective idealism. He held that our knowledge is restricted to our own sensations, that anything beyond them is empirically unknowable, that the material world does not exist, that the knowledge derived from our sensations can refer to nothing outside the circle of our own sensations. By this he introduced hopeless inconsistency into his empiricism. His empiricism, which sought to derive all knowledge from sensation, became a mere figleaf covering up the view that no knowledge can be derived from sensation. All that we can know through sensation is that we experience sensations; it leads to no knowledge whatever of the real world outside us.

So Lenin commented: "All knowledge comes from experience, from sensation, from perception. That is true. But the question arises, does *objective reality* belong to perception,

i.e., is it the source of perception? If you answer yes, you are a materialist. If you answer no, you are inconsistent and . . . the inconsistency of your empiricism, of your philosophy of experience, will in that case lie in the fact that you deny the objective content of experience, the objective truth of your experimental knowledge.”<sup>1</sup>

It is the purpose of the rest of this book to trace the development of subjective idealism from Berkeley, and to criticise it from the standpoint of materialism.

#### 4. THE RECONCILIATION OF SCIENCE AND RELIGION BY SUBJECTIVE IDEALISM

Berkeley arrived at his doctrine of subjective idealism with the object of combating those “errors” in the conception of science which gave support to materialist and atheistic conclusions.

How, then, does subjective idealism square science with religion? It achieves this object in an extremely neat and simple way, which can be briefly summarised as follows.

Scientific results are true, valid and useful—but we must not overestimate their significance. They only deal with the order of our sensations. For sensations come to us in certain orders and in certain combinations, in which invariable rules and laws can be discerned. And science discovers and systematises these rules.

Science is therefore not a materialist theory of the world, it is only a set of rules and predictions of the order of human sensations.

Science is therefore circumscribed within its own limited sphere, and has no bearing at all on the nature of things. Therefore nothing that science can establish can possibly contradict the main tenets of religious faith.

Or to put the issue in another way—

We accept science. We welcome scientific discoveries. We take up “a scientific attitude.” But we recognise that science is not about what it appears to be about.

Science appears to be about the objective material world, its constitution and laws, which are absolutely independent of

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 2, section 4.



human thought, will or sensation. When so interpreted, science is materialistic, and seems irreconcilable with any idealistic or religious conclusions.

But science is really concerned with predicting the order of sensations, and discovering the rules of invariable sequence and combination of sensations, and with nothing else. And so the position is reversed. Nothing that science can establish can, rightly interpreted, any more possibly contradict the main tenets of religion and idealism.

The clear and concise formulation of the position of subjective idealism by Berkeley was a philosophical event of the first importance.

It provided the most satisfactory means of solving the great problem which the rise of capitalist society had set for philosophy, namely, of reconciling the development of science with adherence to religion. Berkeley's subjective idealism so exactly corresponded with the ideological needs of the developing capitalist society—and in Britain, the most "advanced" country, especially—that it took the deepest roots, and has flourished, in one form or another, ever since.

Berkeley laid down the guiding principles, and set the tone, so to speak, for the whole subsequent British philosophy, and for a good deal of philosophy on the Continent as well. The most modern "logisticians" and "logical positivists" have hardly, as I shall show, advanced a step beyond Berkeley; and they still run round and round in the circle of ideas which Berkeley so expertly mapped out.

## CHAPTER 4

### FROM MATERIALISM TO SUBJECTIVE IDEALISM: HUME

#### I. SOME INCONSISTENCIES OF BERKELEY

BERKELEY's circumscription of science, and reconciliation of science and religion, had, however, its negative features. In attempting to solve one problem, it gave rise to many others. Indeed, since science in its development inevitably comes into conflict with the supernaturalist doctrines of religion, not even the British bourgeoisie, those masters of compromise, could be expected to produce a completely satisfactory reconciliation.

And so it came about that Berkeley's effort to remove "the grounds of scepticism, atheism and irreligion" almost immediately gave rise to the very sceptical and apparently irreligious philosophy of Hume.

Not content with showing that science could not overthrow religion, Berkeley, it must now be remarked, tried to develop his philosophical principles as a *justification* of the fundamental tenets of religious faith.

Having made out that matter does not exist, and that our sensations are therefore not caused, as most philosophers "vulgarly hold," by the action upon us of external material objects, Berkeley was led to speculate upon the real origin of our sensations, and of the rational order and combination which is observable amongst them.

The origin, he maintained, must be God.

And following up this line of speculation, he was led to postulate a third mode of cognition in addition to sense-impressions and ideas derived from sense-impressions, namely, cognition through what he called "notions," particularly the "notions" of God and the human soul.

Now in this he was obviously inconsistent.

For if it is illegitimate to infer an unperceived material world as the ground of our experience, it must be equally illegitimate to infer an unperceived "infinite spirit" as that ground.

If all knowledge is derived from sense, how can knowledge

through transcendental "notions" of God and the soul be allowed?

If it is permissible to have a "notion" of the soul and of God, why is it absurd to have another "notion" of matter?

Or if the words "material substance" represent a meaningless expression and unintelligible abstraction, surely the same applies to "infinite spirit"?

These sorts of deviations from the standard of his own lip-service to empiricism, of which Berkeley was guilty, were corrected by Hume, who took it upon himself to develop Berkeley's empirical principles with greater consistency.

But I would point out how intellectually inevitable it is that the empiricist who embraces subjective idealism should lapse into such inconsistency.

For if you hold it "absurd" that sensations are produced by the action of external material objects, you are still faced with the question—*Whence comes our experience?* A materialist philosophy answers this question very simply in material terms. But for subjective idealism it is a question that cannot possibly be answered in any empirical or scientific way—for subjective idealism cannot go "beyond" sensations.

Thus life, and experience, and the reason why "I am," is as much a mystery for the empiricist who embraces subjective idealism as for the most obscurantist religious mystic.

It presents a question which—inside the limits of a subjective idealist philosophy—science cannot even attempt to answer.

Here is my experience—there is a rational order of events within it, but it has no material basis. What does it mean? Whence comes it? What lies "beyond"?

And so it comes about that, in 1710, Berkeley said that experience was directly called forth in us by God; and after more than two hundred years we find a leading figure or "modern" philosophy, the late Professor of Logic and Metaphysics at the University of Cambridge, L. Wittgenstein, saying what amounts to exactly the same thing in the mystical conclusion to his *Tractatus Logico-Philosophicus*: "We feel that even if all possible scientific questions be answered, the problems of life have still not been touched at all. . . . There is indeed the inexpressible. This shows itself; it is the mystical."<sup>1</sup>

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 6.52.

Now we see, incidentally, why Lenin said that pure empiricism was "inconsistent." Through its rejection of materialism it inevitably leads beyond itself into its very opposite, religious mysticism. But I shall proceed to Hume's efforts to create a *consistent* empiricism.

## 2. THE CONSISTENCY OF HUME: ATOMISM AND SOLIPSISM

Hume began his *Treatise of Human Nature* with the proposition: "All the perceptions of the human mind resolve themselves into two distinct kinds, which I shall call *impressions* and *ideas*."<sup>1</sup> This was an improvement on the somewhat ambiguous use of the general term "idea" by Locke, which was also followed by Berkeley, to denote *any* "object" of the mind, from sense-impressions to thoughts. What Hume meant by "impressions" included sensations of colour, sound, smell, touch, pleasure and pain, etc., while "ideas" included images, memories, thoughts.

Hume thought he could distinguish between impressions and ideas simply in terms of "the degrees of force and liveliness with which they strike upon the mind, and make their way into our thought or consciousness. Those perceptions which enter with most force and violence, we may name *impressions*. . . . By *ideas*, I mean the faint images of these in thinking and reasoning."<sup>2</sup>

Hume then went on to say: "There is another division of our perceptions, which it will be convenient to observe, and which extends itself both to our impressions and ideas. This division is into *simple* and *complex*. Simple perceptions, or impressions and ideas, are such as admit of no distinction nor separation."<sup>3</sup>

And from this he proceeded "with establishing one general proposition, That all our simple ideas in their first appearance, are derived from simple impressions, which are correspondent to them, and which they exactly represent."<sup>4</sup>

Thus, with far greater strictness than Berkeley, Hume limited "all the perceptions of the human mind" to "simple,"

<sup>1</sup> Hume: *Treatise of Human Nature*, I, I, 1.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

that is, indivisible, "impressions"; plus "complex impressions" which are merely combinations of "simple impressions"; plus "simple and complex ideas," the "simple ideas" being merely "faint images" of simple impressions, and the "complex ideas" being formed by combining simple ideas together.

From this Hume went on to draw the inevitable conclusion: "We may observe, that 'tis universally allowed by philosophers, and is besides pretty obvious of itself, that nothing is really present with the mind but its perceptions or impressions and ideas, and that external objects become known to us only by those perceptions they occasion. . . .

"Now, since nothing is ever present to the mind but perceptions, and since all ideas are derived from something antecedently present to the mind; it follows, that 'tis impossible for us so much as to conceive or form an idea of any thing specifically different from ideas or impressions. Let us fix our attention out of ourselves as much as possible; let us chase our imagination to the heavens, or to the utmost limits of the universe; we never really advance a step beyond ourselves, nor can conceive any kind of existence, but those perceptions, which have appeared in that narrow compass."<sup>1</sup>

Thus the objects of the mind being strictly limited to our own impressions and ideas, any external reality "beyond" the circle of impressions and ideas is absolutely inconceivable.

In other passages Hume tried to show in some detail how the "illusion" that external material things exist, which occasion our perceptions, and which they represent, arises solely from the persistence and recurrence in actual experience of certain groupings of impressions. Such groupings dispose us to believe that corresponding permanent external things exist. But in fact we have no evidence that anything exists beyond impressions and ideas; and when submitted to strict analysis the supposition of such existence turns out to be nonsensical and meaningless.

So far Hume agreed with Berkeley, though he had developed Berkeley's empirical principles with somewhat greater precision and accuracy. But he went on to point out that, on the same

<sup>1</sup> Hume: *Treatise of Human Nature*, I, II, 6.

principles, not only do external material objects disappear, but the knowing mind, or the soul, disappears as well.

"Self or person," Hume wrote, "is not any one impression, but that to which our several impressions and ideas are supposed to have reference."<sup>1</sup>

And so he asked: "After what manner therefore do they belong to self, and how are they connected with it? For my part, when I enter most intimately into what I call *myself*, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch *myself* as any time without a perception, and never can observe anything but the perception. . . . If anyone, upon serious and unprejudiced reflection, thinks he has a different notion of *himself*, I must confess I can reason no longer with him. . . . But setting aside some metaphysicians of this kind, I may venture to affirm of the rest of mankind, that they are nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement."<sup>2</sup>

And so just as permanent external material objects are reduced to collections of fleeting impressions, the same applies to the permanent self, or soul, or mind. "We may observe, that what we call a *mind*, is nothing but a heap or collection of different perceptions, united together by certain relations, and supposed, though falsely, to be endowed with a perfect simplicity and identity."<sup>3</sup>

So much, therefore, for Berkeley's "notion" of the soul. It has gone the same way as external bodies—been reduced to an illusion, and nothing remains but the series of fleeting impressions and ideas.

Here it may be incidentally remarked that the train of empirical thought which led from Locke, through Berkeley, to Hume, was a train of thought which relentlessly reduced the extent and content of the objects of our knowledge. Thus Locke had allowed three circles of being, so to speak, amongst the objects of our knowledge, viz. (1) impressions and ideas, (2) the self, to which these belong, and (3) external material

<sup>1</sup> Hume: *Treatise of Human Nature*, I, IV, 6.

<sup>2</sup> *Ibid.*, I, IV, 6.

<sup>3</sup> *Ibid.*, I, IV, 2.

objects, which they represent. Berkeley reduced these three circles to two, viz. (1) impressions and ideas, and (2) the self, to which they belong. Hume finally reduced the two circles to one only, viz. (1) impressions and ideas, which belong to nothing and represent nothing.

Having arrived at this position, Hume went on to develop it further, with the same relentless consistency. He next attacked the idea of causality.

He pointed out, as indeed Berkeley had pointed out before him, but without drawing the inevitable conclusion—that sense-impressions are quite “inert,” and do not contain any element of “power” or “efficacy” or “necessary connection,” whereby one can produce or cause another. They simply follow one another, or co-exist together, without any causal connection.

From this Hume concluded that, since our knowledge is limited to the world of such sense-impressions, the popular idea of causality must be, like the popular idea of the external world, an illusion. Each event is absolutely independent of every other. The world we know consists of atomic sensible events, between which there is no necessary or causal connection.

“All events,” he wrote, “seem entirely loose and separate. One event follows another, but we never can observe any tie between them. They seem *conjoined*, but never *connected*.”<sup>1</sup>

What we take to be causality is merely an habitual conjunction of sensible events, which we can sum up in a scientific law or hypothesis, but about which there is no causal necessity whatever.

“A cause,” Hume defined, “is an object precedent and contiguous to another, and so united with it that the idea of the one determines the mind to form the idea of the other, and the impression of the one to form a more lively idea of the other.”<sup>2</sup> Causality has no other significance than this.

Finally, Hume went on to the conclusion that, the objects of knowledge being limited to fleeting impressions and ideas, the knowledge of any one person at any moment is strictly speaking limited simply to the existence of his own impressions and

<sup>1</sup> Hume: *Inquiry concerning Human Understanding*, 7.

<sup>2</sup> Hume: *Treatise of Human Nature*, I, III, 14.

ideas at the moment of knowing. So that pure empiricism, developed consistently, leads to a "solipsism of the present moment."

It is "experience" and "habit" alone, Hume said, which dispose us to believe that permanent external objects exist, that other people exist, that our memory affords us a true picture of our own past existence, and so on. But such beliefs, though we are bound to indulge in them, have no sort of rational or empirical justification.

"Without this quality, by which the mind enlivens some ideas beyond others (which seemingly is so trivial, and so little founded in reason), we could never assent to any argument, nor carry our view beyond those few objects which are present to our senses. Nay, even to these objects we could never attribute any existence but what was dependent on the senses, and must comprehend them entirely in that succession of perceptions which constitutes our self or person. Nay, farther, even with relation to that succession, we could only admit of those perceptions which are immediately present to our consciousness; nor could those lively images, with which the memory presents us, be ever received as true pictures of past perceptions."<sup>1</sup>

Of all philosophical conclusions, solipsism is the most absurd, and most obviously condemns the premises from which such a conclusion could be derived. However, Hume maintained that there was no need to cavil at his solipsistic conclusions.

"I am first affrighted and confounded," he wrote, "with that forlorn solitude in which I am placed in my philosophy. . . ." But "most fortunately it happens, that since reason is incapable of dispelling these clouds, Nature herself suffices to that purpose, and cures me of this philosophical melancholy and delirium, either by relaxing this bent of mind, or by some avocation, and lively impression of my senses, which obliterate all these chimeras. I dine, I play a game of backgammon, I converse, and am merry with my friends; and when, after three or four hours' amusement I would return to these speculations, they appear so cold, and strained, and ridiculous, that I cannot find in my heart to

<sup>1</sup> Hume: *Treatise of Human Nature*, I, IV, 7.



enter into them any farther. Here, then, I find myself absolutely and necessarily determined to live, and talk, and act like other people in the common affairs of life.”<sup>1</sup>

Thus, starting from the empiricist standpoint that all knowledge derives from sense-experience, and combining this with the subjective idealist view that knowledge relates solely to the objects contained in sense-experience, and following up these mutually inconsistent premises to their conclusion, Hume arrived at the paradox that his conclusions were such that the whole of his life and experience compelled him to ignore them.

These conclusions I shall now briefly summarise:—

The known world consists of atomic sensible events.

We can, for our convenience, study the order and combinations of such events experimentally, and formulate scientific laws giving the rules observed in such order and combination. But we cannot discover any necessary causal connection between events. Nor can we discover any permanent ground for the passing phenomena of sense—no objective external material world, nor any permanent self or soul that knows.

My own knowledge is moreover limited to the present events in my own experience. My knowledge cannot penetrate to anything outside the limits of that experience, either in the present, the past or the future.

From this subjective idealist standpoint, Hume launched a determined attack upon all “metaphysics”—by which he meant any theory without an empirical foundation, and which dealt with ideas not definable in terms of the objects contained in sense-experience.

“When we run over libraries, persuaded of these principles, what havoc must we make?” he asked. “If we take in our hand any volume, of divinity or school metaphysics, for instance, let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames; for it can contain nothing but sophistry and illusion.”<sup>2</sup>

<sup>1</sup> Hume: *Treatise of Human Nature*, I, IV, 7.

<sup>2</sup> Hume: *Inquiry concerning Human Understanding*, 12.

### 3. HUME'S PHILOSOPHY IN ITS BEARINGS ON THE PROBLEM OF SCIENCE AND RELIGION

Is it not the case that, unlike Berkeley, the philosophy of "the infidel Hume" (as he was called) was thoroughly anti-religious, anti-idealist? Far from reconciling science and religion, is not this philosophy utterly destructive of religion?

No, this is not the case. And in proof of this contention it is possible to cite Hume himself.

At the end of his *Inquiry concerning Human Understanding*, Hume remarked:

"The sciences which treat of general facts, are politics, natural philosophy, physics, chemistry, etc., where the qualities, causes and effects of a whole species of objects are inquired into. Divinity or theology, as it proves the existence of a deity and the immortality of souls, is composed partly of reasonings concerning particular, partly concerning general facts. It has a foundation in reason, so far as it is supported by experience. But its best and most solid foundation is *faith* and divine revelation."<sup>1</sup>

Again, of the immortality of the soul:

"By what arguments or analogies can we prove any state of existence, which no one ever saw, and which no way resembles any that ever was seen? Who will repose such trust in any pretended philosophy as to admit upon its testimony the reality of so marvellous a scene? Some new species of logic is requisite for that purpose, and some new faculties of the mind, that they may enable us to comprehend that logic. Nothing could set in a fuller light the infinite obligations which mankind have to Divine revelation, since we find that no other medium could ascertain this great and important truth."<sup>2</sup>

Again, at the end of the *Dialogues concerning Natural Religion*:—

"A person seasoned with a just sense of the imperfections of natural reason, will fly to revealed truth with the greatest avidity; while the haughty dogmatist, persuaded that he can erect a complete system of theology by the mere help of

<sup>1</sup> Hume: *Inquiry concerning Human Understanding*, 12.

<sup>2</sup> Hume: *Essay on the Immortality of the Soul*.

philosophy, disdains any further aid, and rejects this adventitious instructor. To be a philosophical sceptic is, in a man of letters, the first and most essential step towards being a sound believing Christian."<sup>1</sup>

Now I am well aware that in passages such as these, Hume had his tongue in his cheek. He himself did not care a fig for religion, whether "natural" or "revealed." In several passages of his books he pointed out how utterly impossible it was to adduce any proofs or evidence of any kind for the existence of God or the immortality of the soul, and in other passages, like those just quoted, he adopted a weapon of polished sarcasm against religion.

But nevertheless, he did bring out the fact that his philosophy was *not* destructive of religion. It *was* destructive of a certain sort of dogmatic theology, which seeks to base religion on metaphysical proofs of the existence of God and the immortality of the soul. But it was perfectly compatible with religious *faith*—religion not based on reasonings or proofs or metaphysics of any kind, but simply on faith and inner experience.

For just as Hume's philosophy limited the sphere of possible scientific knowledge to the very "narrow compass" of one's own sense-impressions, so it necessarily left open the whole question of the why and wherefore of life to non-scientific and non-rational modes of consciousness—to religion, faith, divine revelation, mystical experience, etc.

Hume himself had no religion, no faith, he did not believe in divine revelation, he had no mystical intuitions. But his philosophy was one of "live and let live" so far as religion was concerned. Scientific knowledge had one sphere, religion another—and there was an end of the matter.

Hume was, in fact, the first of the British "agnostics."

It is specially important to notice the significance of Hume's views about causality in this connection. One of the chief bugbears of religion is the notion that science establishes a view of the world in which everything can be explained from natural causes, and which therefore leaves no place for creation, divine intervention, or any of the beliefs of the religious consciousness. Hume's analysis of causality completely disposed of any such notion of the significance of science. He explained

<sup>1</sup> Hume: *Dialogues concerning Natural Religion*, 12.

that any idea of causal *efficacy*, of any causal *connection* between events in nature, of the natural *production* of the whole succeeding state of affairs from that which preceded it by the operation of causes and effects, was a complete illusion. By so doing he rendered natural science quite innocuous as presenting any sort of challenge to the validity of religious consciousness.

Hume's views about causality have had the very greatest influence on subsequent philosophy. Apart from the materialists, and Hegel, *all* subsequent philosophers have adopted, in one form or another, the view that the existence of objective causal connection in nature is an illusion.

So therefore Hume essentially continued and *completed* the work of Berkeley in the matter of the reconciliation of science and religion.

Hume corrected Berkeley. Berkeley had tried to make science itself preach religion. But that would not do.

Hume simply showed that, if science is concerned solely with the order of events in one's own experience, then it cannot possibly conflict with religion. A scientist can be religious or not as he chooses—scientific knowledge simply throws no light at all on the truth or otherwise of religious faith. On the other hand, the religious man has no cause to fear or to quarrel with science.

What does this amount to in relation to the progress of scientific knowledge?

It renders science virtually innocuous in relation to religion. Science makes no claims, it presents no challenge, as against established religion.

In the first period of the development of modern natural science, in the days of Copernicus and Galileo, science took up arms against religious obscurantism. It took up arms in the struggle for human enlightenment, and began to demolish the various dark superstitions which clustered under the banner of religion. But now science is to be disarmed. It is to lay aside the claim to represent a true and expanding picture of the real nature of things, of the natural history of the world, the forces at work in the world, and the explanation of events.

Moreover, in the first period of the development of modern natural science, science served as an ideological weapon in the struggle to overthrow the old feudal order of society, that is,

to destroy the ideas which helped to bolster up that old order and to establish the programme and beliefs of a new society. But now science is to adopt a non-partisan standpoint. It is to busy itself in formulating useful rules and laws governing the probable sequence and combination of events, which will aid the development of mechanical inventions and discoveries, but it is not to challenge the established ideas or formulate any programme for a radical transformation of human life.

The disarming of science in the struggle for enlightenment and progress, the disarming of science in the struggle against superstition, oppression and exploitation—such, therefore, is the meaning of the reconciliation of science and religion effected by subjective idealism under the guise of scientific empiricism.

## CHAPTER 5

### THE AGNOSTICS, KANT AND MACH

#### I. AGNOSTICISM

IN Britain the philosophical development of the ideas of Locke by Berkeley and Hume led to results very acceptable to the conservative bourgeoisie of the 18th century. It led to a theoretical position from which they could safely patronise the sciences without fearing any revolutionary ideas generated by scientific discoveries. This philosophy did clearly recognise that natural science was the road to understanding and interpreting nature. It did not lay down any hard and fast philosophical principles about nature, but was content to leave the truth about nature to be discovered step by step through scientific experiments. At the same time, it cunningly ruled out any possibility that the pursuit of science should lead to ideas dangerous to the established and developing capitalist order of society. It taught that science, after all, was solely concerned with discovering laws and connections observable amongst the data presented within experience. This could lead to discoveries very useful in practical life, but could have no possible bearing on the truths of morality and religion. By useful inventions it would help property owners to augment their wealth, but would not challenge the rights of property, the foundations of Church and State.

With this, the great movement of British philosophical thought of the 17th and 18th centuries came to an end. There followed during the 19th century an elaboration of the work of Berkeley and Hume—an elaboration often for the worse rather than for the better, the main advances being in the specialised field of logic. In particular, the ideas of Hume made their way in Britain, and took the popular form of “agnosticism”—according to which the existence of God, the destiny of the human soul, and so on, are quite beyond the scope of scientific knowledge.

Engels gave a well-known characterisation of agnosticism:—

“What, indeed, is agnosticism but, to use an expressive Lancashire term, ‘shamefaced’ materialism? The agnostic’s conception of nature is materialist throughout. The entire natural world is governed by law, and absolutely excludes the intervention of action from without. But, he adds, we have no means of ascertaining or of disproving the existence of some Supreme Being beyond the known universe. . . .

“Again, our agnostic admits that all our knowledge is based on the information imparted to us by our senses. But, he adds, how do we know that our senses give us correct representations of the objects we perceive through them? And he proceeds to inform us that, whenever he speaks of objects or their qualities, he does in reality not mean these objects and qualities, of which he cannot know anything for certain, but merely the impressions which they have produced on his senses.”<sup>1</sup>

Agnosticism is double-edged. On the one hand, it bolsters up religious beliefs and the ideas associated with them by placing them beyond scientific criticism. On the other hand, it undermines belief by denying it any rational or scientific foundation. The very foundation of agnosticism lies in a general philosophical doctrine about knowledge: we can know only what is given in subjective experience, and whatever lies outside this closed circle, whether the material world or the spiritual world, is outside our knowledge. Useful as agnosticism generally is to the ruling capitalist class, it flourishes only in times of capitalist strength. When danger threatens, then the old theology is vehemently reasserted, and agnosticism falls into disrepute. Thus such ideas fell into disrepute in Britain during the emergency of the French Revolution, rose again in the period of 19th century capitalist prosperity, flourished with imperialism, and are being rapidly discarded again now with the deepening general crisis of capitalism.

It would be wearisome and unnecessary to particularise about the different brands of empirical agnostic philosophy in England in the 19th century—Mill, Huxley, Pearson and the rest. All alike had this in common, that they tried to assimilate the great scientific advances of the 19th century, while maintaining the standpoint that scientific knowledge extends no further than the limits of one’s own sense-impressions.

<sup>1</sup> Engels: *Socialism, Utopian and Scientific*, Introduction.

In contrast to Hume, all these later agnostics were extremely muddled.

For Hume boldly and with clarity drew the consequences of the subjective idealism which the agnostics also embraced, namely, solipsism of the present moment, denial of causality and objective causal connection in nature. But on the other hand, the 19th century agnostics tried *both* to assert the limitation of scientific knowledge to sense-impressions, *and* at the same time to affirm that consciousness had a material origin, that man evolved from the animals, and that the universe itself, prior to any mind or consciousness coming into existence, had its beginning in some primordial nebula.

This was no doubt a very scientific philosophy. But they never noticed that if science establishes such propositions as these, and if these propositions are going to be accepted as philosophical truths about the world, then both science and philosophy are certainly venturing far beyond the bounds of any individual's sense-impressions.

Hence the philosophy of the agnostics was indeed of a muddled, half-hearted, inconsistent kind—"shamefaced," as Engels expressed it.

Since Hume, incidentally, the main empirical philosopher who has *consistently* drawn the consequences of subjective idealism, is L. Wittgenstein. "What solipsism means is quite correct," Wittgenstein affirms. And again, of scientific theories: "The Darwinian theory has no more to do with philosophy than has any other hypothesis of natural science." With Wittgenstein, moreover, the role of subjective idealism as a means of smuggling religion past science is also very clearly expressed. It is an "illusion," says he, "that the so-called laws of nature are the *explanations* of natural phenomena." And he goes on to say: "The *feeling* of the world as a limited whole" (i.e., the limitation of knowledge to the circle of my own immediate experience, the limitation of "the world" to "my world") "is the mystical feeling." "There is indeed the inexpressible; this shows itself; it is the mystical."<sup>1</sup>

But between the sceptical brand of subjective idealism put

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 5.62, 4.1122, 6.371, 6.45, 6.522



forward by Hume, and the mystical brand of such contemporary philosophers as Wittgenstein, went the half-hearted argumentation of the "shame-faced" agnostics—people who at one and the same time took science at its face value as giving a materialist picture of the objective world, and also denied the objectivity of scientific knowledge.

## 2. THE AGNOSTICISM OF KANT, AND ITS CRITICISM FROM TWO ANGLES

British empiricism had an influence far beyond the shores of Britain. But the conclusions drawn by those influenced by it were very different in the Continental countries, especially in France and Germany.

In France in the latter part of the 18th century the tide of the Great Revolution was rising. There, there was no question of defending and consolidating an already existing bourgeois basis of society, but of overthrowing the feudal autocracy. Hence many of the same ideas which were given a conservative significance by the manner of their development in Britain, assumed a highly revolutionary significance in France, where they were developed within a materialist philosophy which was openly critical of both Church and State.

Meantime in Germany, the philosophy of Hume was followed by another sort of agnosticism—the agnosticism of Kant.

Kant was not an empiricist. He could not agree that all knowledge was derived from sensations. But at the same time he was profoundly influenced by Hume, who, as he expressed it, "first awoke me from my dogmatic slumbers."

Hume had argued that there can be no empirical basis for the supposition of the objective existence of permanent "substances," or of "causality." Therefore, he concluded, we possess in fact no objective knowledge of substances or causes. Our knowledge is limited to the world of our own sense-impressions.

But, Kant replied, we *do* possess such knowledge—for instance, we *do know* that every event has a cause, and that this is a necessary law of nature. And therefore, since Kant agreed with Hume that such knowledge could not have an empirical origin, that is, could not be derived simply from

what is given us in sensation, he came to the conclusion that there must exist non-empirical sources of knowledge.

For take the proposition: "Every event has a cause." We know this to be true—but since Hume has shown that it cannot be proved from experience, we must know it independently of all experience. Such knowledge is not empirical knowledge, it is a-priori knowledge.

How is this possible? Kant asked. In his own words: "How is synthetic a-priori knowledge possible?"

To this he replied that the sense-impressions which the mind receives from without are not just accepted ready-made by our consciousness, but are "worked up" and arranged by the mind according to principles of its own. Hume had said that the mind was in fact nothing but a mere "bundle" of sense-impressions. But this, said Kant, was wrong. The mind is rather furnished in advance with all sorts of innate theoretical principles, so that as soon as sense-impressions are received, it gets busy with them, and begins to change them.

Thus sense-impressions are first perceived as spatio-temporal, arranged by the mind itself in a spatio-temporal order. Thus from the "crude" (very crude, as in themselves they have not even a spatio-temporal order) impressions of sense, the mind begins from its own powers to create the "representation" of a world in space and time.

The mind then produces further from its own resources such ideas—Kant called them "categories"—as Substance and Causality; so that it creates, out of the crude impressions of sense, the "representation" of a world in space and time, consisting of various substances, which act causally on one another.

We *know*, therefore, that every event has a cause, etc., because it is *we ourselves* who have arranged for every event to have a cause.

Thus, Kant explained, what we call the objective world—the world which science studies—does not really exist in the form in which it appears to us. The world as we perceive it and know it is a creation of the mind, according to principles innate in the mind itself. It is simply a "representation" or "phenomenon"; a world which we, with our own mental resources, create from the crude impressions of sense.

Where these original impressions come from, we do not know. And what the *real* world is like we do not know—"things in themselves" are necessarily unknowable. Our knowledge is limited to the world of "phenomena."

Thus it seems clear that with Kant we merely reach the same essential conclusion as before, though by another road. Scientific knowledge is valid "within its own sphere." It is valid of "phenomena." But "things in themselves" transcend all possibility of scientific knowledge. Does God exist? Is the soul immortal? Is the will free? We cannot know. Such questions transcend the limits of scientific knowledge. They are matters of *faith*, rather than knowledge. They concern things in themselves, whereas knowledge relates only to phenomena.

Thus both Engels and Lenin rightly treat Kantianism as a species of agnosticism. For instance, "The distinction between the Humean and Kantian theories of causality," Lenin wrote, "is only a secondary difference of opinion between agnostics who are basically at one, viz., in their denial of *objective* law in nature."<sup>1</sup>

At the same time, Kant's philosophy certainly contained some very original features of its own. For one thing, Kant stressed the creative role of human activity in a way in which British empiricism did not, although he regarded this as a purely theoretical activity of the mind and not as real human social activity. Locke, Berkeley and Hume treated the mind as though it passively "received" sense impressions and then did no more than simply analyse and compare them. For Berkeley the external world was merely the assemblage of impressions received by the mind, and for Hume the mind itself was no more than "a bundle" of sense impressions. Thus, for them, the mind had no creative role to speak of. For Kant, on the other hand, the mind actively creates its representation of the world from its own resources; necessary features of the world, such as causality, are put into it and, so to speak, legislated for it by the mind. It is thus that the world as we know it, the "phenomenal" world, is created and governed.

Kant therefore limited all knowledge, and all possible

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 3, section 3.

knowledge, to the "phenomenal" world—which includes, of course, the "phenomenal" self, since we ourselves, as we know ourselves, are as "phenomenal" as anything else. Nothing in the world as we know it exists "in itself," but everything is dependent on the mind and is a creation of the mind. But at the same time, Kant declared that "things in themselves" do exist, although they are unknowable, and that the "phenomena" are the appearances to us of "things in themselves." The *real* self, as distinct from the "phenomenal" self, is just such a thing in itself. This was another distinctive feature of Kant's philosophy.

In line with this, Kant concluded that "man is a denizen of two worlds." He is a "denizen" of the "phenomenal" world, but he is also a "denizen" of the "real" world—and it is his real existence in the latter which creates the illusion of his life in the former.

Commenting on Kant, Lenin remarked that: "The principal feature of the philosophy of Kant is an attempted reconciliation of materialism and idealism, a compromise between the claims of both, a fusion of heterogeneous and contrary philosophical tendencies into one system. When Kant admits that something outside us—a thing in itself—corresponds to our perceptions, he seems to be a materialist. When, however, he declares that this thing in itself is unknowable . . . he appears to be an idealist. Regarding experience as the only source of our knowledge, Kant seemed to be turning towards . . . materialism. Recognising the a-priority of space, time and causality, etc., Kant seems to be turning towards idealism."<sup>1</sup>

Kant called his philosophy "the critical philosophy." It was "critical," according to him, because its fundamental method was critically to examine the sources of our knowledge and the principles whereby it was constructed, thereby showing that it was knowledge only of "phenomena," of the appearances of things to us and not of "things in themselves." This also implied a "criticism" of the world as we know it, showing it up as a mere transient and unsatisfactory appearance which we have somehow created for ourselves. Yet while Kant's "criticism" thus criticised the world and stressed our own

<sup>1</sup> Lenin: Loc. cit., ch. 4, section 7.

active role in creating it, it was a purely quietist and theoretical criticism which gave not a hint as to anything practical that could or should be done to change the world. Indeed, as to the basis of the real world, the world of "things in themselves," and how we could act on it and change it, Kant's "criticism" definitely stated that we could know or do nothing.

Such a "critical" attitude was inconsistent and unstable, and was in fact a characteristic expression of the position of the German bourgeoisie at the time, Kant being a philosophical representative of theirs. They were not in power like the British, and the British modes of thought seemed to them complacent and superficial. Nor were they strong and confident enough to rise in revolt and change the world with the French revolutionaries. Hence their peculiar and futile type of "criticism."

Kant's ideas began to serve as a refuge for people who were dissatisfied with the state of the world, but who could not or did not want to do anything about it beyond engaging in vague aspirations for a higher and nobler life, and vague thoughts about transcendental truth and the illusoriness of the material world. In this capacity they proved attractive to certain intellectual representatives of the bourgeoisie in various countries. In Britain, for instance, people like Coleridge and the Lakeland poets, who had once been champions of freedom but were thoroughly scared by the French Revolution, considered Kant very profound, though they were intellectually incapable of following his actual arguments.

At the same time, Kant himself was criticised.

The first line of criticism of Kant was that it was wrong to separate the phenomenon from the thing in itself. We are not each shut up in his own phenomenal world, but we do have objective knowledge of the real world.

This was the line of criticism taken up by Hegel, and after him by Marx.

But Hegel still regarded the world as being the creation of spirit. For him the nature of the world was determined, not, as Kant had said, by the categories employed by the particular individual mind, but by the universal categories of the universal mind.

Marx, however, pointed out that the world exists on its

own; that ideas are the reflections of real things, and not the other way round; that "universal mind" has no meaning; that only particular minds exist, which arise from the organisation of matter at a certain stage of development. "To Hegel," said Marx, "the life-process of the human brain, i.e., the process of thinking, which, under the name of 'The Idea,' he even transforms into an independent subject, is the demiurgos (creator) of the real world, and the real world is only the external, phenomenal form of 'The Idea.' But with me, on the contrary, the ideal is nothing else but the material world reflected by the human mind and translated into forms of thought."<sup>1</sup>

It is clear that Hegel and Marx criticised Kant in the same way, namely, they criticised his denial of the objectivity of knowledge. But Marx developed this line of thought *consistently*, as a *materialist* line of thought. For Marx we have knowledge of the real material world, we have ever increasing knowledge of things in themselves existing independently of the mind, precisely because we are active agents in the real world; and we gain and test our knowledge of things in practical life, in changing the world. So Marx concluded: "The question whether objective truth can be attributed to human thinking is not a question of theory but is a practical question. . . . The philosophers have only interpreted the world in various ways; the point, however, is to change it."<sup>2</sup>

With Marxism, materialism became fully consistent; it grew in theoretical strength and influence; what was more, it applied itself to the scientific criticism of the existing state of society, became the guide and inspiration of the revolutionary working class movement and its allies among the intellectuals, and clearly showed the way forward to change society, to end capitalism and its rule, to end exploitation, oppression and poverty, and build socialism and communism. As a result, all the philosophers of the bourgeois camp—all those who, whether malignantly conservative, liberal or mildly socialist, accepted and defended the existing basis of society—had more emphatically than ever before to dissociate themselves from materialism, and to set about "refuting" it and propagating

<sup>1</sup> Marx: *Capital*, Preface to the Second Edition.

<sup>2</sup> Marx: *Theses on Feuerbach*, II and XI.

theories to counteract it. Towards the end of the 19th century there arose, as an effective and influential counter to materialism, a move back again to Kant.

This movement back to Kant also set out to criticise Kant, but based itself on a criticism which was the very opposite from that started by Hegel and continued by Marx. Now the criticism was that Kant should not even have mentioned things in themselves as the ultimate source of knowledge; that our knowledge is entirely confined to the sensible elements of experience; that Kant's theory of causality as a necessary feature of the material world as we know it conceded too much to the reality of objective law in nature, whereas in actual fact all that the use of such "categories" as causality amounts to is a convenient mode of describing the order and combinations of our sense-impressions.

Thus while Kant was first criticised for not allowing enough objectivity to knowledge, now he was criticised for allowing too much. Lenin expressed this by contrasting "the criticism of Kant from the left and from the right"—the criticism "for not being more of a materialist," and "for being too much of a materialist."<sup>1</sup>

And so while the first line of criticism led *forward* to something new, namely, Hegel and Marx, the second now only led *back*—to a new edition of the old subjective idealism of Berkeley and Hume.

### 3. BACK TO SUBJECTIVE IDEALISM—ERNST MACH

The "neo-Kantian" movement, that is, the movement which went backwards from Kant to subjective idealism, produced, as its perhaps most readable exponent, the "scientific" philosopher, or "philosophical" scientist, Ernst Mach.

Mach called his main philosophical book *The Analysis of Sensations*. In it he affirmed that the "elements" of the known world are sensations. All our knowledge, he said, refers to the order and arrangement of such "elements," that is, to the order and arrangement of sensations.

Therefore scientific theories and scientific laws are to be understood as simply statements that "the elements," i.e., sensations, occur in such and such an order.

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 4, section 1.

Thus: "Bodies do not produce sensations, but complexes of elements (complexes of sensations) make up bodies.

"If, to the physicist, bodies appear the real, abiding existences, whilst the 'elements' are regarded merely as their evanescent, transitory appearance, the physicist forgets, in the assumption of such a view, that all bodies are but thought-symbols for complexes of elements (complexes of sensations). . . .

"For us, therefore, the world does not consist of mysterious entities, which by their interaction with another, equally mysterious entity, the ego, produce sensations, which alone are accessible. For us colours, sounds, spaces, times, are provisionally the ultimate elements, whose given connection it is our business to investigate. It is precisely in this that the exploration of reality consists."<sup>1</sup>

Again:

"In conformity with this view the ego can be so extended as ultimately to embrace the whole world. . . . The antithesis between ego and world, between sensation (appearance) and thing, vanishes, and we have simply to deal with the connection of the elements."<sup>2</sup>

But this theory, Mach asserted, is not "subjective idealism." Quite the contrary.

The "elements," he explained, are not mental, but neither are they material. What are they, then? They are "neutral." When we deal with one sort of "order" of the "elements," that is the science of psychology, and we call them "mental." When we deal with another sort of "order," that is the science of physics, and we call them "physical" or "material." But really they are "neutral"—just "elements"; and all our knowledge and all science have the same objects, namely, the "elements" which we are acquainted with in experience—and which in one order make up a mind, and in another order, a body.

It is not difficult to see that this theory differs in no important respect from the subjective idealism of Hume. The main difference is in terminology.

But there is also another difference.

<sup>1</sup> Mach: *Analysis of Sensations*, I, 13.

<sup>2</sup> *Ibid.*, I, 7.



Hume clearly admitted that his philosophy meant solipsism. Mach, on the other hand, tried to dodge this conclusion by the device of calling his sensations by the name of "elements," and describing them as "neutral."

Mach said he did not deny the existence of external material objects. A table, for instance, is real enough, he argued. It is a real set of "elements," which, considered in one relation, is my sensation of a table, but which, considered in another relation, is the table itself.

Again, he tried to make out that all we say and know about, for instance, other minds, and similarly about other times and places, and about the past, and about the state of matter even before any living beings with their sensations ever existed, is literally true, as science teaches, because appropriate arrangements of "neutral elements" correspond to all such statements.

But all this was a painful muddle.

For what evidence is there for the existence of all these "elements," floating and combining in the void?

Mach asserted that ordinary bodies, considered as "real abiding existences," were "mysterious entities." But if there is a "mystery," what about the "neutral elements"? These surely are the product of the metaphysical imagination? They really *are* "mysterious entities."

Moreover, the mere use of the word "neutral" tacked on to "elements," to denote sensations, does not make "my" sensations any less "my own," and "mine" exclusively. Still less can it conjure forth sensations which "belong" to nobody. But when Mach imagined arrangements of "neutral elements" corresponding to all the statements of science, it was precisely that absurdity which he was imagining.

But in truth it must be said that he did not succeed even in imagining such a thing; for no one can imagine the unimaginable, or conceive of the inconceivable. He was tacking new-fangled words together; but the statements produced were in fact meaningless.

Hence it must be admitted that Mach and his followers, no more than the English agnostics, advanced a step beyond Berkeley and Hume. But on the other hand, they did succeed in obscuring the classical clarity of

Berkeley's and Hume's philosophy with a great many new muddles.

Besides Mach, and besides the English agnostics, there were dozens of other philosophers of the neo-Kantian, Machian, positivist and agnostic variety; the differences between whom seemed of great importance to themselves, but were of secondary importance in the history of thought.

Remarking on this, Lenin said: "It should be noted that an eclectic combination of Kant and Hume, or Hume and Berkeley, is possible, so to speak, in various proportions, by laying principal stress now on one, now on another element of the mixture."<sup>1</sup>

The important feature, which is in common between all these systems, is the denial of the objectivity of scientific knowledge, the subjective idealist theory that all knowledge derives from sensations and cannot extend beyond the limits of sensations.

#### 4. THE APPEASERS IN THE CAMP OF SCIENTIFIC THOUGHT

I think it will be clear from the whole of this exposition, that the agnosticism and Machism of the 19th century fulfilled exactly the same philosophical role as the philosophy of Berkeley and Hume in the 18th century, that is, to produce a philosophy which would enable would-be scientific minds to avoid "dangerous thoughts" by appearing to "accept science," without overthrowing religion. But more than that. It strove to canalise scientific research and scientific thought themselves into limited and relatively "safe" channels—restricting them to limited generalisations about observational data and discouraging the putting forward and testing of bold hypotheses about the fundamental interconnections and laws of motion in nature; treating the different branches of science as separate disciplines and discouraging the unification of the sciences; above all, banning the scientific investigation of the basis of society and of its laws of motion, and likewise of the material basis and laws of development of human consciousness.

Since the science of the 19th century was far more advanced, far richer in content, and covered a far wider field, than the

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 4, section 2.

science of the 18th century, it followed that this philosophical task became much more difficult, and the philosophy accordingly became involved and muddled.

"Three great discoveries," wrote Engels, "enabled our knowledge of the interconnection of natural processes to advance by leaps and bounds; first, the discovery of the cell as the unit from whose multiplication and differentiation the whole plant and animal body develops. . . . Second, the transformation of energy, which has demonstrated that all the so-called forces operative in the first instance in inorganic nature . . . are different forms of manifestation of universal motion. . . . Finally, the proof . . . that the stock of organic products of nature surrounding us today, including mankind, is the result of a long process of evolution from a few original unicellular germs, and that these again have arisen from protoplasm or albumen which came into existence by chemical means.

"Thanks to these three great discoveries and the other immense advances of natural science, we have now arrived at the point where we can demonstrate as a whole the inter-connection between the processes of nature not only in particular spheres but also in the inter-connection of these particular spheres themselves, and so can present in an approximately systematic form a comprehensive view of the inter-connection in nature by means of the facts provided in empirical natural science itself."<sup>1</sup>

In other words, 19th century science had advanced to a point where it already began to present, at least in general outline, a scientific materialist picture of the world, including the physical and mental life and experience of mankind. This picture was further developed by the demonstration provided by Marx, that human history and the movement of society and ideas had likewise a natural scientific explanation. Scientific knowledge remained, it is true, as it always must remain, in many respects incomplete and provisional. But the development of science held out the promise that there was no sphere of nature or human experience which was not susceptible of scientific treatment, and which could

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.

not be included in the general unified scientific picture of the world.

In face of this tremendous advance of scientific knowledge, extending to every aspect of nature and society, the "philosophers of science" set themselves to prove that knowledge cannot extend beyond the limits of sensations; that all science can do is but to work out an elaborate system for describing and predicting the order of our sensations; and at the same time they tried to maintain the standpoint of people who "accepted" all the discoveries of science.

No wonder they got into a muddle.

Their philosophy turned out to be, therefore, one whose mission it was to add to all the discoveries of science a big "BUT." Science has discovered the truth of the evolution of life from the lower forms of organisms to the higher: *but* this discovery only relates to the order of our sensations. Science has formulated the laws of the conservation and transformation of energy: *but* this really relates only to the order of our sensations. And so on.

The significance of this "but" is that it denies that science presents a true, or approximately true, picture of the objective material world and of our place in it. The "but" destroys science as a picture of the objective world.

By so doing, this philosophy clearly gives leave to the exponents of anti-scientific views of the world to claim credence for *their* world-picture—and then to keep pulling to pieces, blotching and smudging the scientific picture of the world.

The whole history of modern science from the time when Galileo fell into the hands of the Holy Inquisition has been the history of struggle against anti-scientific ideas. It has been the history of the uprooting of dogmas, mysteries and superstitions from one field after another; of the victory of enlightenment; and of the winning of men's free control over nature and their own destiny in place of acceptance of things as they are and worship of the unknown.

Machism and similar theories are therefore with some justice accused of being theories that disarm science in this struggle for enlightenment. Their "but" is a gesture of appeasement towards the enemies of scientific knowledge and of scientific culture. It gives way to them, lets them get on

with the dissemination of anti-scientific views, and renounces the aim of the scientific explanation of the whole world.

And just as appeasement in any sphere always leads to the disruption of one's own camp in the interests of the enemy, so it is with the philosophy of science. It leads to the disruption of scientific thought by many obscurities and muddles, the importation into scientific thought of nonsensical and meaningless terms. It leads to the presentation, not of a picture of the objective world we live in, its laws of motion and our own place in it, but to a picture of what Sir James Jeans later called "the mysterious universe." Everything becomes doubtful and obscure; and strange shadowy entities—"elements" and so forth—take the place of material and controllable facts and processes.

This theoretical confusion has more than a merely theoretical significance.

Our ideas arise from our material mode of living, but they govern our material mode of living too. If the human race is to be emancipated from poverty and oppression, then our struggle for progress must be guided by a clear scientific theory, in politics in particular, but in every other sphere of human activity as well. Unscientific and anti-scientific notions are at best a hindrance to progress. But most often they are used by those whose interests are opposed to progress as a means of helping to oppose it.

The theoretical activity, therefore, of those philosophers and scientists who are engaged in adding "buts" to science is not something independent of the social struggle. Whether the philosophers intend this to be so or not, it plays its part in giving aid and comfort to the enemies of progress.

A philosophy which sets limits to science by denying its reference to the objective world, necessarily has its counterpart in the flourishing of superstition and ignorance amongst the people. For if people do not learn to understand the world scientifically, then they must remain victims of faith, tradition and authority. And so, great as may be the gulf, socially and intellectually, between the academic philosopher and scientist and the common man, this type of philosophy plays its part in society as a barrier to the enlightenment of the people, and so far therefore as a help to reaction.

Above all, if we understand how science progressively discovers the truth about the objective world, about nature and about society, then we can understand how, armed with science, we can change the world and transform human life. But theories which deny the objectivity of scientific knowledge play into the hands of those who are opposed to any such change and transformation.

## CHAPTER 6

### CRITIQUE OF SUBJECTIVE IDEALISM

#### I. HOW DO WE GAIN OUR KNOWLEDGE?

IN this chapter, before passing on to the examination of contemporary forms of subjective idealist philosophy, I shall attempt to analyse the main theoretical mistakes made by the philosophy already passed under review.

What is wrong with it as a philosophy? Briefly, the answer is:

(A) That it is founded on premises which are obviously untrue.

(B) That its conclusions are in glaring contradiction with well-established facts.

The first line of refutation was particularly developed by Engels, and the second by Lenin.

(A)

I think it is clear from the whole preceding exposition that, at the basis of the philosophy of subjective idealism, in all its various forms, lie certain characteristic views about the nature of *knowledge*. Namely, knowledge is regarded as being derived from sense-perception, in the sense:

(i) That sense-perception is the original starting point of knowledge, and that the objects of sense-perception are our own sensations or sense-impressions, which therefore constitute the original given data from which the whole body of knowledge is derived.

(ii) That sensations being the ultimate given data of knowledge, then knowledge is derived through the mental activity of analysing, comparing, combining, ordering, etc., our sensations; so that whatever results can be so obtained by contemplating sensations, constitute knowledge; whereas propositions which cannot be so derived, and which in any way go beyond what can be so derived, do not constitute knowledge, but are mere baseless speculations, or are even entirely without meaning.

Naturally, the above view of knowledge can be expressed in many other ways, utilising various sorts of philosophical terminology; but the above, I believe, constitutes the gist of the matter as concerns the fundamental view of knowledge taken by subjective idealism.

Now if this premise regarding the nature of knowledge is granted, then the rest of subjective idealism follows.

It is undeniably true that, taking sensation as the given ultimate basis of knowledge in this sense, then you cannot, by any conceivable species of logic, arrive at the knowledge of the existence of anything else except sensations. Sensations are the given; we cannot know that anything exists whose existence cannot be known through contemplating sensations, their combinations and orders—if that is granted, then we cannot know about the existence of anything else except sensations themselves.

But the point is—the premise is obviously untrue.

“Some truths there are,” to quote Berkeley, “so near and obvious to the mind that a man need only open his eyes to see them.” And “such I take this important one to be, viz.” that our knowledge is *not* derived from sensations in the way described above. We do not gain our knowledge by simply accepting given sensations, and then analysing and comparing our sensations one with another. On the contrary, we gain our knowledge by doing things, acting on things, changing things, producing things, which involves far more than merely contemplating the sensations which happen to enter into our consciousness.

In order to convince oneself of this, one need not look further, indeed, than “one’s own experience.”

Furthermore, just as the subjective idealist, in his “analysis of sensations,” usually introduces into his own sense-experience an atomism which as a matter of fact is not there at all, so he regards experience in general in an atomistic way. He treats the experience of each person, of each knowing subject, as a separate atom, totally exclusive; and so each has only his own private knowledge, derived from his own private sensations, and has no grounds for inferring, or knowing, anything beyond what is contained in his own private experience. That is why subjective idealism, *consistently* carried out, must always lead to solipsism.



But again, such a view of the basis of knowledge is totally at variance with the manifest facts.

It is not the case at all that knowledge is the private property of each knowing mind. But just as knowledge is *not* gained by the mere contemplation on the part of each individual of his own private sensations, but *is* gained by practical activity directed upon surrounding objects; so also knowledge is gained by the co-operative practical activity of many people, and many generations of people, and is not separately built up by each person. Knowledge is public, not private; it is the common product and the common property of many people organised in society; and the sum of knowledge gained by their social co-operation could not possibly be gained by any one individual.

Hence subjective idealism is based upon an obviously false premise—on the premise that the knowledge of each one of us is derived from the private contemplation of the private sensations of each one of us; whereas in fact there is common social human knowledge, derived from the co-operative activity of generations of people, directed upon, and in interaction with, surrounding objects.

## 2. DOES OUR KNOWLEDGE RELATE TO THE OBJECTIVE MATERIAL WORLD?

Having laid bare this basic error of subjective idealism in its account of the nature of knowledge, it is possible to indicate the way out from some of the typical philosophical puzzles generated by subjective idealism, and also the general justification of the materialist postulate of the existence of the objective material world, to which all our knowledge must relate.

Subjective idealists have often objected that the expression "objective material world" is incomprehensible, a meaningless combination of words. What exactly, then, do these words mean?

I will not define "world," I hope that word is understood. But in speaking of the "objective" world, I mean that that world is the same for everyone. Thus if my perceptions give me information about the objective world, that means they give me information about exactly the same world as your

perceptions give you, and as everyone else's perceptions give them. And in speaking about the objective "material" world, I mean that that world exists in space and time independently of being perceived or known, and, indeed, independently of any sort of consciousness or mental or spiritual being or process.

As Engels said, "the basic forms of all being are space and time,"<sup>1</sup> and "motion is the mode of existence of matter."<sup>2</sup> The "objective material world," therefore, means the processes and movements extending through space and continuing in time, which exist independently of anyone's perceiving or thinking about them, and to which everyone's perceptions and everyone's thoughts relate.

Often the objective material world is referred to as being "external." This of course means external in relation to any individual's consciousness. My consciousness occurs within the totality of events which make up the world; but the events which arouse my consciousness, and to which it relates, are external to my consciousness.

It is, then, a typical doctrine of all forms of subjective idealism and agnosticism that our knowledge cannot penetrate beyond sensations, or beyond the contents of our own experience. Sensations are the given data with which we have to work; and therefore the idea of an *external* objective world, *independent* of our experience, *causing* our sensations and *represented* by our sensations, is a purely "metaphysical" idea, absurd and incomprehensible.

We cannot know anything about such an external world. It is outside the limits of our knowledge, just because it is external to sense-experience. Indeed, we can attach meaning to our words themselves only in so far as they refer to given elements of sense-experience, and therefore we cannot even attach any meaning to our words when we talk about an external world.

Thus Berkeley said: "When I consider . . . the signification of the words 'material substance,' I am convinced there is no distinct meaning annexed to them." Again: "If there were external bodies, it is impossible we should ever come to

<sup>1</sup> Engels: *Anti-Duhring*, ch. 5.

<sup>2</sup> *Ibid.*, ch. 6.

know it." And: "You may, if so it shall seem good, use the word 'matter' in the same sense as other men use 'nothing.' . . ."<sup>1</sup>

Kant spoke of the external objective world as a realm of "things in themselves," unknowable and incomprehensible.

Mach spoke of supposed real external objective things as "mysterious entities."

And so in general, it is everywhere asserted that the external objective material world, the system of material processes which in their interaction with our own organic bodies produce sensations, is a meaningless supposition, without any grounds in experience or reason, mysterious, incomprehensible, absurd—in a word, "metaphysical."

The answer to this line of reasoning was worked out by Engels. His answer was in essence very simple. He pointed out that once a correct view is taken of the basis of our knowledge, in place of the distorted subjectivist view, then it becomes obvious that external material objects, far from being unknowable and incomprehensible, are very easily known, and the validity of our knowledge of them is very readily tested.

"This line of reasoning," Engels wrote, "seems undoubtedly hard to beat by mere argumentation. But before there was argument, there was action. 'In the beginning was the deed.' And human action had solved the difficulty [i.e., the difficulty of securing knowledge of external objects] long before human ingenuity invented it. The proof of the pudding is in the eating. From the moment we turn to our own use these objects, according to the qualities we perceive in them, we put to an infallible test the correctness or otherwise of our sense-perceptions. If these perceptions have been wrong, then our estimate of the use to which an object can be turned must also be wrong, and our attempt must fail. But if we succeed in accomplishing our aim, if we find that the object does agree with our idea of it, and does answer the purpose we intended for it, then that is positive proof that our perceptions of it and its qualities, so far, agree with reality outside ourselves."<sup>2</sup>

Referring to Kant's statements about the unknowable

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 17, 20, 80.

<sup>2</sup> Engels: *Socialism, Utopian and Scientific*, Introduction.

"thing in itself," Engels further wrote: "To this Hegel, long since, has replied: If you know all the qualities of a thing, you know the thing itself; nothing remains but the fact that the said thing exists without; and when your senses have taught you that fact, you have grasped the last remnant of the thing in itself. . . . To which it may be added, that in Kant's time our knowledge of natural objects was indeed so fragmentary that he might well suspect, behind the little we knew about each of them, a mysterious thing in itself. But one after another these ungraspable things have been grasped, analysed, and what is more reproduced by the giant progress of science; and what we can produce, we certainly cannot consider unknowable."<sup>1</sup>

Again: "The most telling refutation of this as of all other philosophical fancies is practice, viz., experiment and industry. If we are able to prove the correctness of our conception of a natural process by making it ourselves, bringing it into being out of its conditions and using it for our own purposes into the bargain, then there is an end of the Kantian incomprehensible thing in itself."<sup>2</sup>

To all this it may be objected that the argument fails as a proof of the existence of external material things, because it all the while assumes their existence. Therefore, regarded as a proof of the existence of the objective material world, Engels' argument falls into the fallacy of arguing in a circle.

Such an objection must doubtless be urged by those who prefer to assume that they know only that themselves and their own subjective experiences exist. But they fail to see that they also are arguing in a circle. For they too start with an assumption, namely, that the objects of our knowledge are restricted to sensations, sense-impressions, sense-data; and if they make that assumption, then of course they can never show either that the objective material world exists, or that we can have any knowledge about it.

But the objection fails to grasp the purpose and force of Engels' argument. He was not trying to produce a proof from first principles, that the external world exists. There can be no such "proof," nor is one needed. In the 11th century

<sup>1</sup> Engels: *Socialism, Utopian and Scientific*, Introduction.

<sup>2</sup> Engels: *Ludwig Feuerbach*, ch. 2.

Saint Anselm of Canterbury (he became Archbishop there after the Norman Conquest) brought forward an argument known as "the ontological proof" of the existence of God, which was a proof "that God necessarily exists." And six centuries later this same argument was dug out and used again by the Cartesian philosophers. Engels, however, was not trying to produce an "ontological proof" of the existence of matter, or of the objective material world. What he was trying to do (and succeeded in doing) was to show *how*, given external material objects, with their action upon us and our action on them, we can come, through that interaction, to have verifiable *knowledge* about external material objects.

Now this *was*, first of all, a refutation of the arguments of the subjective idealists, solipsists, etc. For they had all argued that we *cannot* be said to have knowledge of the objective material world, whereas Engels had shown just how we both can and do have such knowledge. Therefore they were refuted.

And therefore, too, the existence of the objective material world was established beyond all doubt; for if we find that our knowledge relates to it, then of course it must exist. We may assume, and we ought to assume, in any philosophical account of knowledge, that the objective material world exists. For as soon as we begin to analyse the nature and grounds of our knowledge, we find that it does relate to the objective material world; and if we try to relate it to anything else, then we falsify it.

What precisely, then, is contained in Engels' "most telling refutation" of subjective idealism?

Simply this. That in life men enter into relations with the external world. Knowledge of external objects seems mysterious and impossible only when knowledge is regarded in abstraction from all other human activity. But when such a false abstraction is corrected, and knowledge is regarded concretely, as it exists in actual life and experience, in its relations to the totality of human activities, then there is nothing mysterious or impossible in the fact that it relates to external material objects. On the contrary, that relation, and the general principles of that relation, become very clear.

Consider human knowledge concretely, as it actually exists,

comes into being, and develops. Is it gained as a result of our contemplating, analysing, comparing, our own inner subjective sensations? No, it is not.

All knowledge is gained as a result of grappling with problems. And the sort of problems that face us in real life are not problems of how to analyse our sensations and describe their order and combinations, but they are problems of how to conduct ourselves in relation to surrounding bodies. It is the problems of practice that set the problems of knowledge.

The root problem of knowledge is to evolve ideas and theories corresponding sufficiently well with the real nature of things, as to enable us to handle them successfully. And as the problem is, so of course is the answer. If the problem relates to the properties of external objects, so must the answer relate to the properties of external objects. And when our ideas of the properties of things enable us—as they very frequently do, otherwise we would not survive—not merely to find our way about amongst surrounding objects and to avoid being harmed by them, but to change them, and to produce them for ourselves, then that is the test and proof that the ideas correspond to the objects.

As Francis Bacon remarked: "Knowledge of nature is the same thing as power over nature."<sup>1</sup> He realised very well that to know the properties of things is to know how to control and to produce them. But those who started from the same empirical standpoint as himself, forgot this important fact.

This account of knowledge, and of the mode of development and test of the validity of knowledge, is integrally related to the materialist scientific account of social development as a whole. For the sum of human knowledge is as much a social product as any other of the activities and products of men; and it has the same roots. The basic social activity of men, which drives forward and conditions the whole of their social activity, is the activity of *production*, that is, wresting a living from nature, and producing for ourselves the products and results which we require. Knowledge arises from the effort of production; increase of knowledge brings increased power of production; and that increased power of production is the test of the objective validity of knowledge.

<sup>1</sup> Bacon: *Novum Organum*.

Thus in proportion as we know how to produce processes and to produce objects for ourselves, out of their constituents, so is our knowledge of those processes and objects the more complete. That which we cannot produce remains for us, to that extent, something indeed mysterious, unknown, a "thing in itself." But when we learn how to produce it, the mysterious becomes comprehensible, the unknown becomes known, the "thing-in-itself" becomes a "thing for us."

For instance, we have at the present time some idea of the nature of life, namely, that it is the mode of existence peculiar to bodies with a certain chemical constitution. But until we can actually learn how to produce living matter, there remains something mysterious and unknown about the nature of life. On the other hand, vitamins were, up to recently, a very mysterious type of substances; but now we can manufacture vitamins, the mystery is disappearing. (Of course from this it is clear that those biologists who say that not only we cannot now, but we never can, be able to trace the production of living matter, are people for whom the nature of life is not a relative but an absolute mystery. They renounce the search for more knowledge about life, and would prefer that it remains unknown.)

What is there unknowable about the objective material world as here demonstrated? There is nothing by nature unknowable and incomprehensible about external material objects. On the other hand, if we seek incomprehensible mysteries it is in the writings of subjective idealists that we shall find them. What *they* affirm the objects of our knowledge to be is indeed something incomprehensible. A limited subjective world of colours, sounds, smell, tastes, feelings of hardness and softness, etc., existing nowhere, with no material basis—here indeed, as Wittgenstein truly said, we find "the mystical."

### 3. THE OBJECTS OF SENSE-PERCEPTION

I have tried to show the basis, and the meaning, of our affirmation of the existence of the external objective material world, and of knowledge about that world. But what of this other "world" of the subjective idealists, that is, the world of sense-impressions, sensations or sense-data; to which, according

to them, our knowledge relates; which comprises the objects of our knowledge; and which is—not objective—but a subjective world, different for me than for you?

Some investigation is evidently needed of sense-perception, to find out whether it does in fact have as its objects such subjective entities as the world of the subjective idealists is supposed to consist of. And while this is properly a question of experimental psychology, physiology and neurology, enough can perhaps be established of the matter here to show up the nature of the errors into which the subjective idealists have fallen.

Knowledge begins with sense, and sensation and sense-perception is the foundation of all the higher forms of knowledge—of this there can be no doubt.

The subjective idealists say, however, in one way or another, that sensation or sense-perception is not a means whereby we have direct knowledge of objective external things, but on the contrary, that sensation erects an opaque barrier between ourselves and external objects. The objects of sense are sensations, sense-impressions, "sense-data"; and we cannot, so to speak, see through sensations to the external things which lie beyond them. From this some conclude that nothing lies beyond; others, that something may exist there, but it is unknowable; others again, like Mach, more ingenious, conclude that sensations and external objects are the same thing, and that external objects are just so many complexes of sensations; or (as we shall see in the Second Part of this book) they give an analysis of the meaning of propositions about external objects according to which such propositions are really about the order and arrangement of sensations.

Since sensation is in fact the direct means whereby we become aware of the existence and properties of external objects, it is strange that so many philosophers should regard it as a barrier shutting out knowledge of the existence and property of external objects. But this strange conclusion arises from regarding sensation abstractly, and not in its relation to life. When sensations are regarded abstractly, as so many given data with which the mind has to work, then of course the conclusion follows that (as has already been pointed out), just by apprehending, analysing and comparing such



sense-data, we cannot arrive at the knowledge of anything beyond.

But we have no right to take such an abstract view of sense-perception. After all, it has been studied in some detail by experimental science, and if we philosophise about it we must do so on the basis of the scientific results. Physical phenomena too have been studied by science; and that being so, any philosophy which attempted to generalise about physical phenomena on philosophical principles—like, for example, the ancient Greeks—and ignored the results of physical science, would be regarded as entirely out-of-date and baseless. Just the same is true of sense-perception.

Sense perception is the process through which the sentient organism becomes aware of various features of its environment, and of the state of its own body and of its relations with the environment, thanks to which it is able to react appropriately to various conditions which it encounters. In sense perception the sense organs, external and internal, react to effects transmitted from external objects and from within the body—the eyes to light waves, the ears to sound waves, the skin to touch or heat, the internal sense organs to various internal changes, and so on; and impulses are transmitted from the sense organs to the brain. The brain, as Pavlov defined it, is “the organ of the most complicated relations of the animal with the external world.” The impulses transmitted from the sense organs to the brain act as so many signals of the relations of the organism with its environment, and there follows the sensible, conscious representation of the surrounding objects, the state of the organism, and their relations, according to the information picked up by the sense organs and co-ordinated by the brain. The organism is then able to behave in a manner appropriate to this representation of its surroundings.

In this way, incidentally, it is not very hard to account for some of the well-known phenomena of sense, which have been thought to be a great puzzle by some philosophers. Naturally, the sensible representation of things will depend not only on the things themselves but on the relation of the organism to them; on the conditions under which it is perceiving them, including not only its objective relations with external things but also its own internal state. For instance, if we look

sideways at a round penny, it will look elliptical. The sun, which is a very big object, but a long way away, looks smaller than the fire in my own fireplace, which is a comparatively small object, but is very near. A stick half submerged in the water looks bent. Warm water feels warmer to a cold hand than to a hot one. And so on. Moreover, the senses sometimes mislead us altogether, by representing things as quite different from what they are, or even things which do not exist at all. Sometimes the senses mislead us, and this is not surprising when one considers how the senses work. But we can usually tell, if not at the time, then afterwards, whether the senses mislead us or not. For when we deal with things according to the information received through the senses, and we find that thereby we can get along in the world, then that is the sign that, so far at least, the representation of things made from our sense-perception is a true representation, corresponding to the nature of the objects.

Sense knowledge, or sense-perception, is therefore to be regarded concretely as a certain activity of sentient organisms, through which these organisms discriminate various features of their immediate surroundings, integrate those features into a single representation, and are thus enabled to react appropriately. From this it is clear that the *objects* of sense-perception, the objects *known* through the senses, are material objects, objects of the objective external world. There is nothing "mysterious" about those objects; for we are always surrounded by them, always interacting with them, and always in our waking hours gaining knowledge about them through sense-perception. Indeed, each one of us is only *ourselves* one amongst those objects, for we, too, have a material existence. From this point of view, what *does* seem mysterious is rather the supposition of a set of special non-material sense-objects, private to the sentient mind—whether these are called "sense-impressions," "ideas," "sensations," "elements," or whatever they are called by the philosophers who invented them.

But here the philosophers will cry—No, what you say does not follow. Consider the stick that looks bent in the water; consider the penny that looks elliptical when you see it sideways; the alleged objective stick is straight and the penny is

round, but *what you see* is bent or elliptical. What you see, the object of your sense-perception, is not an alleged external material object, but is rather a sensation, a sense-impression, a sense-datum.

Now on this I would make three remarks:—

(1) Is what we see, or, not to confine ourselves merely to sight, what we are aware of in sense-perception, analysable into separately existing sensations or sense-data?

No, it is not. At the present moment, what I am sensibly aware of is the room in which I am writing, including within it the visual appearance of the tables and chairs, the sound of the ticking of the clock, the warm sensation from the fire, and so on. Is this the same as an awareness of a collection of different sensations, of simple and separate colours, sounds, sensations of warmth, etc.? Is it analysable into such separate sensations? Clearly not. If by an effort of abstraction, for instance, I can bring myself to see the table before me, not as a solid table, but as a brown sensation, or brown patch, then I am causing myself to see something different from what I saw before. Hence to regard what I am aware of as being a collection of sensations or sense-data, made up out of the separate impressions of the different senses, is to begin to invent constituents of sense-experience which have no real existence whatever.

Of course, my total sense-perception is the result of a fitting together of the data provided by the separate senses. But that fitting together is done in the course of the complicated integrative processes which take place inside my brain, when the impulses from the different senses are received. The data of each sense do not enter my consciousness separately at all, as if my consciousness were analysable, as Hume said, into "a bundle of sense-impressions"; what I am conscious of, is a whole integrated representation of my surroundings, in which the data derived from each sense have become blended, and have no longer any separate existence.

And these results, be it noted, are not the mere product of some philosophical speculation, but emerge from the work of experimental psychology and physiology, culminating in the researches of Pavlov.

Hence it cannot be correct to suppose that the object of our

sense-perception is analysable into a collection of separate sense-impressions or sense-data. "Sense-impressions," "sense-data," considered as "objects," are a purely metaphysical invention. They have no real existence, and no place in any science.

(2) In this connection, it is specially noteworthy that the alleged sense-impressions or sense-data are entirely passive or, as Berkeley put it, "inert," and have no sort of interaction whatever one with another.

In them we have an alleged set of completely immaterial objects, which have no sort of effect or influence on one another or on anything else.

There is an alleged sense-impression of colour, or a coloured sense-datum: but it exists absolutely without activity of any description; it has no power to change, influence or affect itself or anything else.

What a strange mode of existence this is—how mysterious, incomprehensible and incapable of any sort of scientific study. Having postulated such a mode of existence, philosophers have proceeded to argue that, since only such-like objects are known to the human mind, therefore causality and the power of things to influence and change one another in the world must be an illusion. But the argument should rather go the other way round. Since the alleged sense-impressions or sense-data are so entirely "inert" and powerless to change, therefore it is they which are the illusion.

(3) How, then, does the illusion of the existence of sense-data arise?

This illusion arises because subjective idealists base their theories of sense perception purely on passive introspection. Thus they look inside their own consciousness, so to speak, and they find there that their consciousness has a most interesting, varied and changing content. But inside their own consciousness they are not aware at all that their consciousness is only an aspect of certain material processes, namely, the processes inside their brain. So they ignore this fact and pay no attention to it. And having done so, they then come to regard their consciousness, and the whole changing content of their consciousness, as being an independently existing "world" on its own.

This process of abstraction, based on the mental attitude of introspection, was rather vividly, if strangely, described by the German "phenomenologist," Edmund Husserl. In a book called *Pure Phenomenology* he said that what was necessary was to consider our own consciousness, and in doing so to "bracket" or "disconnect," as he expressed it, both the objective world and the existence of our own selves; that is, to ignore such factors altogether. What was left over after such disconnecting was "pure consciousness." And: "Consciousness, considered in its 'purity,'" he said, "must be reckoned as a self-contained system of Being, as a system of Absolute Being, into which nothing can penetrate, and from which nothing can escape; which has no spatio-temporal exterior, and can be inside no spatio-temporal system. . . ."<sup>1</sup>

Having, then, arrived at the position where our consciousness, with its content, is regarded as something that exists independently, the introspective empirical philosopher then proceeds to try to "analyse" it into its parts. He tries to represent this "world" of consciousness or pure experience as being built up out of constituent atoms, just as the objective material world is considered to be composed of atoms; he calls these atoms "sensations" or "sense-data" or "elements," or any other name that occurs to him; and so invents a whole realm of objects, which he declares to be the true objects of knowledge; and he ends by declaring that the objective material world does not exist at all.

As I have shown, such "atoms" are not actually to be found inside our consciousness, nor do they have any of the characteristics of real objects, because they cannot influence or change anything. But the basic fallacy which led to the assertion of the existence of such objects can now be made plain. It is a fallacy which has been fairly common in the history of philosophy; namely, the fallacy of mistaking for an independently existing object, some mere aspect or part of a fact or process, which can be thought of in abstraction, but which can have no independent existence. These philosophers think of consciousness in abstraction, and then try to represent the content of consciousness as a world of independently existing objects.

<sup>1</sup> Husserl: *Pure Phenomenology*, 33-49.

4. IS SUBJECTIVE IDEALISM COMPATIBLE WITH  
THE RESULTS OF SCIENCE?

What, then, is the upshot of this whole discussion about the theory of knowledge of subjective idealism? It is that the theories of subjective idealism are without foundation, because they rest on false premises, that is, on an inaccurate account of knowledge involving false abstractions; and that there is every reason to presume the very opposite of what subjective idealism asserts.

## (B)

But secondly, the conclusions of subjective idealism, which are based on this inaccurate and abstract account of knowledge, are moreover themselves at variance with the most well-tested facts established by the very scientific knowledge about which subjective idealism tries to philosophise. This becomes very obvious after the preceding discussion.

Criticising subjective idealism, Lenin asked: "*Does man think with the help of the brain?*"<sup>1</sup>

The answer, of course, is: Yes, he does. It is scientifically established that not only does man think with the help of the brain, but that thought is a function of the brain, and that without a brain there can be no sensation, no experience, no thought.

But the conclusion of subjective idealism is that the brain is really only a certain sort of combination of sensations. As Mach said, "bodies do not produce sensations, but . . . complexes of sensations make up bodies." Therefore, sensation does not depend on the brain, but the brain depends on sensations, namely, on sensations being combined in a certain way.

Therefore, sensation is not a function of the brain, but the brain is a function of sensations.

Or to put it in another way, the idea of "the brain," like the idea of all bodies, is only a convenient mode of describing and predicting certain sensations which we experience under certain circumstances.

Hence quite clearly this philosophy holds that the existence of sensations, and the process of thought based on sensations,

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 1, section 5.

is really absolutely *independent* of any brain, or any other material thing. It tells us that when it says "brain," it means only something about sensations; and hence quite clearly it in effect *denies* that sensation or thought is dependent on anything other than itself. My sensation, my experience, is absolute—absolutely independent.

But clearly such a doctrine is in hopeless contradiction with what we know to be the case as a result of scientific investigation, namely, that sensation and thought are dependent, dependent on a material thing, the brain.

*Whatever* interpretations or analyses this philosophy may give of scientific propositions about thought and the brain (and it has given many), they cannot conceal the fact that this philosophy asserts that sensation exists without sense organs, thought without a brain.

Again, Lenin asked: "*Did nature exist prior to man?*"<sup>1</sup>

Again the answer, of course, is: Yes, it did. It is a well-established fact that the human race is descended from other forms of organic life, that life itself has a chemical origin, and that for ages and ages the state of matter was such that no life, let alone such a complicated form of life as man, was possible.

But what has subjective idealism to say of all this? Simply that nothing exists beyond sensations, and that our knowledge can in the last analysis refer only to sensations. Therefore, when we say, "Nature existed prior to man," we really mean, or ought to mean, something very different from what we say.

Perhaps, for example, we mean that in the past certain combinations of sensations existed, without those particular combinations existing which constitute the life of man. But that supposes that sensations exist without anyone to have those sensations, which of all the abstruse, mystical and metaphysical speculations ever imagined, is the most absurd.

Or perhaps its meaning is to be explained in another way, for instance: "If I imagine myself to have existed so many millions of years ago, then I must imagine myself to perceive only sequences of events which would render life impossible," or something of that sort. This again is absurd, because I cannot imagine myself existing, far less perceiving anything, under such circumstances.

<sup>1</sup> Lenin: Loc. cit., ch. 1, section 4.

Or perhaps, more ingenious still (and this is the interpretation put up by the most up-to-date subjectivists), it is to be explained in terms of the principle that "the meaning of a proposition is its verification." In that case it would mean something like this: "If I have the sensations of looking at stratified rocks, then in some strata I will see fossil remains, and in other (which I call 'earlier') strata I will not," and so on—thus making the present perceptions, which would be brought forward as part of the evidence or verification of the existence of inorganic nature prior to life, themselves constitute the meaning of the proposition for which they provide the evidence.

All such interpretations are very ingenious; but they cannot conceal the fact that, if nature *did* exist prior to man, then there was a time when there were *no* sensations, *no* thoughts, but only material things. And therefore the philosophy of subjective idealism *denies* that nature existed prior to man, *denies* the theory of evolution, and denies in fact more or less the whole body of established scientific truth.

Subjective idealists will protest against this, that it is an elementary misrepresentation, that they deny no scientific truths, but only analyse them and interpret them philosophically. But it is one thing to say that I have, under certain conditions, sensations which I conveniently describe in various scientific terms. It is quite another thing to say that the world has had a long process of evolution; that only at a certain stage did life appear; that the higher forms of life evolved from the lower; that the highest form of organisation of matter is the human brain; and that sensation and thought are functions of the brain. The second is what science says. The misrepresentation is all on the side of the subjective idealists. They misrepresent the meaning of the results of science.

In fact, what the subjective idealists are doing is to *reject* the results of science, in favour of what can only be termed medieval obscurantism. For to deny the reality of the dependence of thought on the brain, to deny the reality of evolution, to deny that life itself emerged only at one stage of the history of the world—what is this, indeed, but medieval obscurantism in the place of science?



Thus just as the premises of subjective idealism, in its treatment of knowledge, are false, so also are its conclusions at variance with the most well-established scientific truths.

Thus this philosophy is no scientific philosophy, but a thoroughly anti-scientific philosophy.

It is not, however, openly anti-scientific. It is not openly reactionary. Its denial of scientific truth is not made openly, but in a roundabout way, while ostensibly accepting the scientific truths which it nevertheless rejects. This conclusion reinforces the conclusion I had already formulated at the end of the previous chapter, that this philosophy plays the part of an agency of appeasement within the camp of science, holding back the advance of materialist scientific enlightenment, and confusing and distorting the teachings of science.

## PART TWO: LOGICAL ANALYSIS AND LOGICAL POSITIVISM

### CHAPTER 7

#### LOGICAL ANALYSIS AS A PHILOSOPHICAL METHOD

##### I. A GALILEAN ADVANCE, UNASSAILABLE AND DEFINITIVE TRUTH

I HAVE examined the subjective idealism of the past and its various disguises as “scientific” philosophy, and now approach its offspring, the “scientifically” disguised subjective idealism of today.

This contemporary “scientific” philosophy—“logical analysis,” “logical positivism,” “radical physicalism”—puts forward the greatest possible intellectual claims. Its various exponents are indifferent to the history of philosophy. They claim to be the exponents of the only correct and moreover radically *new* method of philosophical thinking, in the light of which most previous philosophy turns out to be meaningless “metaphysics,” and all philosophical problems are capable of solution.

Thus Bertrand Russell, who was the principal founder of the views I am now to examine, wrote of his own philosophy: “It represents, I believe, the same kind of advance as was introduced into physics by Galileo; the substitution of piecemeal, detailed and verifiable results for large untested generalities, recommended only by a certain appeal to the imagination.”<sup>1</sup>

Russell’s pupil, Wittgenstein, went even further:

“How far my efforts agree with those of other philosophers I will not decide,” he wrote. But “the *truth* of the thoughts communicated here seems to me unassailable and definitive.

<sup>1</sup> Russell: *On Knowledge of the External World*, p. 4.

I am therefore of the opinion that the problems have in essentials been finally solved.”<sup>1</sup>

I propose, however, to examine these various Galilean discoveries, and unassailable and definitive truths, on their merits.

## 2. LOGIC AS THE ESSENCE OF PHILOSOPHY

The central feature of the contemporary “scientific” philosophy is the principle, first enunciated by Russell, that “logic” is “the essence of philosophy.”

Distinguishing his own philosophical outlook from that of what he called “the classical tradition” in philosophy, Russell found the essence of this tradition in the belief “that a-priori reasoning could reveal otherwise undiscoverable secrets about the universe, and could prove reality to be quite different from what, to direct observation, it appears to be. It is this belief,” he added, “rather than any particular tenets resulting from it, that I regard as the distinguishing characteristic of the classical tradition, and as hitherto the main obstacle to a scientific attitude in philosophy.”<sup>2</sup>

In opposition to this tradition, Russell held that philosophy does not and cannot establish or discover new facts, or new generalisations, about the world, or about particular things in the world. That is the task of science, and can only be done on the basis of empirical evidence and scientific method.

Therefore the problems of philosophy, and the philosophical propositions in which these problems are stated and answered, must be of another kind altogether to the problems and propositions of science.

“The consideration that philosophy, if there is such a study, must consist of propositions which could not occur in the other sciences, is one which has very far-reaching consequences,” said Russell. He went on to illustrate this: “All the questions which have what is called a human interest—such, for example, as the question of a future life—belong, at least in theory, to special sciences, and are capable, at least in theory, of being decided by empirical evidence. . . . A genuinely scientific philosophy cannot hope to appeal to any

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, Preface.

<sup>2</sup> Russell: *Our Knowledge of the External World*, p. 5.

except those who have the wish to understand, to escape from intellectual bewilderment. . . . It does not offer, or attempt to offer, a solution of the problem of human destiny, or of the destiny of the universe."<sup>1</sup>

Thus, incidentally, this conception of philosophy at any rate offers us an "escape" from any "intellectual bewilderment" arising from the grave "problem of human destiny," by offering us a means of "escape" from the problem of human destiny itself. But to proceed:—

From this follows the conclusion that philosophical problems "all reduce themselves, in so far as they are genuinely philosophical" (that is, not pseudo-problems, or problems which should be answered through empirical scientific investigation) "to problems of logic. This is not due to any accident, but to the fact that every philosophical problem, when it is subjected to the necessary analysis and purification, is found either to be not really philosophical at all, or else to be, in the sense in which we are using the word, logical."<sup>2</sup>

Russell announced, then, a philosophical programme, which can be briefly summed up as follows:—

(1) Facts and generalisations about the world—in other words, positive knowledge—must be acquired empirically, partly through ordinary perception, partly by the more refined technique of natural science. Hitherto unknown facts and generalisations about the world cannot be discovered by a-priori reasoning.

(2) The task of philosophy is to subject the propositions established through ordinary perception and by science to a logical analysis.

(3) Such logical analysis cannot establish any new truths.

(4) But by analysing and making clear the logical form of truths already known, it imparts to positive knowledge a new clarity, and overcomes the confusion and "intellectual bewilderment" which results when the logical form of what is known is not itself understood.

Such is the Galilean discovery and the general programme of the new "logical" and "scientific" philosophy inaugurated by Russell.

<sup>1</sup> Russell: *Our Knowledge of the External World*, p. 17.

<sup>2</sup> *Ibid.*, p. 33.

At first sight this programme may appear to be reasonable and progressive. For what could be more reasonable and more progressive than the view that our knowledge of the world derives from perception and is deepened and enlarged by the methods of science, and that the task of philosophy is to provide a clarification of such positive knowledge?

But I would say that a further consideration reveals very soon that this "new" programme bears a suspicious resemblance to the very old philosophical programme of Berkeley and those who followed from him.

They said: We "accept" the results of science . . . BUT—we give them a certain interpretation. Now it is said: We "accept" the results of science . . . BUT—we submit them to logical analysis.

### 3. THE MEANING OF LOGICAL ANALYSIS

The idea of "logical analysis" has its roots in certain conceptions of pure mathematics and mathematical logic, which Russell thought could be generalised into a new method of philosophy.

Mathematicians have found it necessary to give a good deal of attention to the exact definition of the terms of which they make use. It is this mathematical type of exact definition which Russell thought could be generalised into a method for philosophy.

For instance, in the sphere of the differential calculus, the whole fundamental idea of the differential function was for a long time very obscure. Thus a differential function gives the velocity of a moving body at a given instant of time; and this was thought to involve the very obscure conception of the infinitely small distance travelled in an infinitely small time. Yet obviously the whole idea of infinitely small quantities was impossible and contradictory, since all real quantities, however small, are necessarily finite. This difficulty was cleared up by mathematicians, by giving a more exact definition of the differential function. It was defined as the *limit* towards which the relation of the distance travelled to the corresponding period of time approaches as the distances and times considered get smaller and smaller. Thus this more exact definition got

rid of the conception of infinitely small quantities, and employed only the conception of finite quantities approaching the limit of zero as they get smaller and smaller. Thus it gives an analysis of what is meant by expressions involving differential functions.

Again, take irrational numbers, such as  $\sqrt{2}$ , which were a puzzle to mathematicians for about 2,000 years. Rational numbers could be defined as ratios between integers, such as  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , etc.; but there is no rational number to be found such that its square is equal to 2. And yet mathematicians were constantly under the necessity of operating with irrational numbers such as  $\sqrt{2}$ , although they could not define them and their use seemed to involve a contradiction. This difficulty was avoided when it was found possible to define  $\sqrt{2}$  and other irrational numbers in terms of rational numbers—just as it was found possible to define the relations between infinitesimal quantities in terms of relations between finite quantities. Thus a series of rational numbers can be defined, such that their squares approach nearer and nearer to 2 without limit, though there is no rational number whose square is actually equal to 2. All that had to be done was then to say that in referring to  $\sqrt{2}$  we are simply referring to this series of rational numbers, and the “mysterious” irrational number was then defined in terms of the rational numbers. This gave an analysis of what is meant by expressions involving irrational numbers.

In his *Principles of Mathematics*, and in much greater detail in his *Principia Mathematica* (which was dignified by having its title in Latin), Russell thought he could show how all the different sorts of numbers which are used in mathematics could be defined in terms of the series of “natural” numbers, 0, 1, 2, 3, 4, 5, 6. . . . Thus rational numbers were defined as ordered pairs of natural numbers. Then the idea of series of rational numbers with an upper or lower limit could be defined; and in terms of this, the real numbers, as series of rational numbers, which included both irrational numbers and rational real numbers. Then complex or “imaginary” numbers (such as  $\sqrt{-1}$ ) were defined as ordered pairs of real numbers.

These definitions would show how all expressions involving rational, irrational or imaginary numbers are capable of an

analysis in terms of natural numbers. Apart from this analysis, it might seem that rational, irrational and imaginary numbers all have, so to speak, an ultimate mathematical existence.

But Russell also tackled the analysis of the natural numbers themselves, and tried to show how they could be analysed in terms not properly mathematical at all, but rather logical. Thus the whole of pure mathematics could be derived from logic.

He thought that natural numbers could be defined in terms of the logical idea of a class. A class (in the logical sense used by Russell) consists of all individuals having a certain property; and a class is characterised by a number, namely, the number of individuals which have that property, or are members of that class. Clearly two classes have the same number when a relation can be established between their members, such that to each member of the one class corresponds a member of the other class. So a number is a property or characteristic of a class. Just as all individuals having a certain property can be said to constitute a class (of individuals), so all classes having a certain property can be said to constitute a class of classes. The natural numbers are then defined as classes of classes.<sup>1</sup>

Thus just as all statements about higher forms of numbers are analysed as statements about natural numbers, so statements about natural numbers themselves are analysed as statements about classes. Thus the whole of mathematics, when submitted to analysis, turns out to be about classes.

This method of analysis which, in Russell's opinion, had so successfully elucidated the foundations of mathematics, could, he thought, be applied not only to mathematics but to every department of knowledge. By applying the method of logical analysis in every sphere of thought, obscurities and confusions could be dissolved, and clarity could be reached as to the real meaning and content of our knowledge.

<sup>1</sup> Russell gives a popular exposition of his theory of numbers in *Introduction to Mathematical Philosophy*. In Chapter 2, on the Definition of Number, he defines two classes as "similar" when they each have the same number of members, i.e., when a one-to-one correspondence can be established between the members of the one class and those of the other class. He then states: "The Number of a class is the class of all those classes that are similar to it" (p. 18); and: "A Number is anything which is the number of some class" (p. 19).

## 4. RUSSELL ON OUR KNOWLEDGE OF THE EXTERNAL WORLD

I will proceed, therefore, to the question of the application of the method of logical analysis to the problems of philosophy.

"I wish to apply the logico-analytic method," said Russell, "to one of the oldest problems of philosophy, namely, the problem of our knowledge of the external world." After warning the reader that, "What I have to say on this problem does not amount to an answer of a definite and dogmatic kind," Russell added: "But although not yet a definite solution, what can be said at present seems to me to throw a completely new light on the problem."

"In every philosophical problem," he continued, "an investigation starts from what may be called 'data,' by which I mean matters of common knowledge . . . commanding our assent as on the whole and in some interpretation pretty certainly true."<sup>1</sup>

He went on to say that the "data" are of three main kinds, namely: (1) facts known through current experience; (2) facts known through memory and the testimony of others; (3) the principles of science. "In the main," he said, "we may accept this mass of common knowledge as affording data for our philosophical analysis."<sup>2</sup>

Here is demonstrated the essence of the logical-analytic method in action. All philosophers who follow this method make such a beginning as this. They claim to accept the "mass of common knowledge," vouched for by common sense or common observation, and science, as the data of philosophy. They claim to take it for granted that all this is "on the whole and in some interpretation pretty certainly true." And they then submit this knowledge to logical analysis. In carrying out this analysis they try to discover the ultimate irreducible elements which the whole "mass of common knowledge"—all the typical propositions which they are analysing—refers to; and then to show how all statements are translatable or analysable into statements about these elements (just as, for instance, the ultimate elements of mathematics were found to be the natural numbers, which themselves could be analysed as classes of classes).

<sup>1</sup> Russell: *Our Knowledge of the External World*, p. 65.

<sup>2</sup> *Ibid.*, p. 66.



Russell went on to point out that the various data mentioned vary in respect of certainty. Some of the data, when submitted to criticism, can very well be doubted. But the degree of legitimate doubt must vary; and some cannot be doubted at all. The latter Russell called "hard data" and: "Let us confine ourselves to the hard data," he said, "with a view to discovering what sort of world can be constructed by their means alone."<sup>1</sup>

Thus Russell thought the ultimate terms or elements of the analysis of "the external world" should be the so-called "hard data." But so far, incidentally, "the completely new light on the problem" turns out to be nothing but the Method of Doubt enunciated by Rene Descartes in 1628. "Only those objects should engage our attention," wrote Descartes in that year, "to the sure and indubitable knowledge of which our mental powers are adequate." And, "our inquiries should be directed . . . to what we can clearly and perspicuously behold and with certainty deduce; for knowledge is not won in any other way."<sup>2</sup> And just as Descartes set out to construct a world on the basis of a few principles which could not possibly be doubted, so, it seems, did Russell set out to "construct a world" on exactly the same basis.

But to continue. "Our data now," said Russell, "are primarily the facts of sense, i.e., of *our own* sense-data, and the laws of logic."<sup>3</sup>

Russell went on to interpret, or analyse, ordinary common-sense knowledge of the things about us, and scientific knowledge, in terms of "sense-data." "I think it can be laid down quite generally," he said, "that, in so far as physics or common-sense is verifiable, it must be capable of interpretation in terms of actual sense-data alone."<sup>4</sup>

Carrying out this "new" interpretation, Russell called a "sense-datum" which would commonly be said to be a sense-datum "of" a thing or external object, perceived by a certain person from a certain point of view, an "aspect" of the thing.

He then proposed "the task of reconstructing the conception of matter without the a-priori beliefs which historically gave

<sup>1</sup> Russell: *Our Knowledge of the External World*, p. 71.

<sup>2</sup> Descartes: *Rules for the Direction of the Mind*, 2 and 3.

<sup>3</sup> Russell: *Loc. cit.*, p. 72.

<sup>4</sup> *Ibid.*, p. 81.

rise to it. . . . For this purpose, it is only necessary to take our ordinary commonsense statements and re-word them without the assumption of permanent substance. . . . A 'thing' will be defined as a certain series of aspects, namely, those which would commonly be said to be *of* the thing. To say that a certain aspect is an aspect *of* a certain thing will merely mean that it is one of those which, taken serially, *are* the thing."<sup>1</sup>

He added: "The above extrusion of permanent things affords an example of the maxim which inspires all scientific philosophising, namely, 'Occam's razor': *Entities are not to be multiplied beyond necessity*. In other words, in dealing with any subject matter, find out what entities are indubitably involved, and state everything in terms of those entities."<sup>2</sup>

In this case, all that is "indubitably involved" in "our knowledge of the external world" is the fact that we perceive sense-data; and so the external world is to be interpreted as consisting simply of certain series and combinations of sense-data, and objective permanent material things and processes are "extruded."

Just as numbers are "analysed" as classes of classes, so external objects are "analysed" as combinations of sense-data.

I do not think it is necessary to follow up this "analysis" any further. For the source of the "completely new light on the problem" is now itself fully illuminated.

The philosophical results turn out to be identical in absolutely every respect with the philosophy of Ernst Mach, which Russell reproduces almost down to the last detail.<sup>3</sup> And finally, the "re-wording of commonsense statements without the assumption of permanent substance" is only a re-wording—in fact, scarcely even that—of the Principles of Bishop Berkeley.

Criticism of Russell's philosophical conclusions is, therefore, unnecessary here. They are not new, and I have criticised them already. The results of the "logico-analytic method,"

<sup>1</sup> Russell: *Our Knowledge of the External World*, p. 105.

<sup>2</sup> *Ibid.*, p. 107.

<sup>3</sup> In later works Russell succeeded in adding a lot more subtle complications, without adding anything essentially new. Professor Gilbert Ryle has recently demonstrated, in his *Concept of Mind* and *Dilemmas*, the absurdity of Russell's ideas—pointing out that what we observe or perceive is things, not "sense-data," and that far from "sense-data" certainly existing, they certainly do not exist.

at least in Russell's hands, represent only a re-statement of the old Berkeley-Humean subjective idealism.

### 5. LOGICAL ANALYSIS AS A METHOD OF UNSCIENTIFIC SPECULATION

I have examined Russell's application of the "logical-analytic method." Other philosophers, however, who have used this method, have reached results which (in their opinions) differed in important respects from those of Russell. It may be claimed, therefore, that because exception can be taken to Russell's conclusions, it does not follow that the method as such should be rejected, but only that Russell had made a wrong use of it.

I shall therefore devote a little attention to the logical-analytic method as such, as a method of philosophy.

Once again, what is the logical-analytic method?

It is a method which claims to reveal philosophical truth by the logical analysis of typical propositions of "science and common sense." Its exponents claim that by its means philosophy becomes scientific, and that it puts an end to arbitrary system-building and speculation.

The general features and assumptions of the logical-analytic method have already been defined. Summarising once again, the method may be said to be based on two postulates. On the one hand, it postulates that the body of propositions which are vouched for by normal experience and by scientific method, are true. In other words, what we would ordinarily call knowledge really *is* knowledge. And on the other hand, it postulates that such propositions do not, in their ordinary form of expression, exhibit the *ultimate* data or subject matter to which they refer, and so stand in need of a logical analysis.

For instance, propositions expressing facts of ordinary perceptual or commonsense knowledge contain such expressions as "table," "chair," "mountain"; or again such expressions as "person," "nation" or "State." Scientific propositions contain such expressions as "atom," "electron," "molecule," "fundamental particle," "wave," etc., etc. . . . But such "objects" and their properties and relations are not *simple*, and so are not the *ultimate* constituents of the world.

Such expressions will therefore *disappear in analysis*. And when the propositions containing such expressions are analysed, then they will be expressed in terms of the *ultimate* constituents. In other words, ordinary unanalysed knowledge seems to be about such things as tables, chairs, electrons, and so on; but analysis will make clear the ultimate constituents of knowledge.

Mr. J. T. Wisdom (an analytic philosopher who once made it his main business to analyse analysis) has expressed this by saying that "the philosopher asks, What is the Self? What is the State? What is Time? . . . The philosopher is asking for a certain kind of definition of the Self, of the State."<sup>1</sup> These questions are to be answered by working out the analysis of propositions in which such terms as "Self," "State," or "Time" occur. The philosophical analysis will reveal the ultimate nature of things, which is not clearly apprehended in ordinary unanalysed knowledge.

Now it will hardly be disputed that many of the expressions which we normally utter or write, even in scientific discussions, require clarification and definition, not simply in the sense of a verbal definition, but in the sense of making clear the essential character of what we are talking about when we use those expressions. For instance, it may quite reasonably be asked, What is the State? But the question that arises is: *How* is greater clarity to be reached? *How* is "ultimate," or at all events more ultimate, knowledge to be arrived at?

The way to answer this question is, I think, in essentials, not very difficult. If we want more profound knowledge about a thing than we already possess, the way to gain such more profound knowledge is to undertake scientific investigation.

Take, for instance, the kind of questions which Mr. Wisdom thought should be answered by philosophical analysis.

"What is the State?" was one of his questions. This question has been answered scientifically in the scientific materialist theory of the State, first worked out by Marx and Engels. That theory does analyse the State. It does substitute for a vague and general concept of "the State" a very exact picture of the kind of facts we are referring to when the State is in question. It does enable us to express propositions about the State far more clearly than they could be expressed

<sup>1</sup> J. T. Wisdom: "Ostentation," in *Psyche*, vol. xiii.

before. It does give far more profound knowledge about the constituents of the State than was possessed before the scientific theory was formulated.

But when the State was studied scientifically by Marx and Engels, they studied the actual exemplifications of State power; they studied the history of the State; they studied the State in its motion, change and development; they studied it in its actual real historical relations—not as an abstract, isolated fixed “concept.” Thus they arrived at conclusions which could be actually tested and verified in practice. On the other hand, to sit down and try to work out “a logical analysis of the State” in the abstract, simply out of one’s head, could not possibly produce anything but baseless and abstract speculations.

Mr. Wisdom also wanted to know what is the nature of the facts we are referring to when we speak of the Self, or Time, and likewise of tables and chairs, electrons, vitamins, and all other things. To answer him, it is necessary only to say that, whether contemporary science has a complete answer to all such questions or not, there seems to be no reason to doubt, and every reason to affirm, that it is by the continuation of scientific methods of empirical investigation that we shall be able to answer such questions. Any *other* mode of investigation—a *philosophical* as opposed to an empirical *scientific* mode of investigation—would be quite superfluous and would get us nowhere.

To put the point in a nutshell: When we ask for “deeper,” more “exact,” more “ultimate” knowledge of the nature of the things to which our knowledge relates, how are we to get it? We answer:—By scientific investigation, by experiment, by putting forward hypotheses which we can *test* and *verify* and *use*, in a word, by a continuation of the well-tried methods of scientific research. In this way our knowledge does get more and more “exact” and “ultimate”—never *absolutely* exact and ultimate, it is true; that is a final limit which, so far as we can see, never can be reached, though we may more and more approximate to it.

Now, therefore, it is possible to begin to indicate the basic character of the mistake made in the formulation of the method of logical-analytic philosophy. This method supposes that the

more precise, more clear, and more profound knowledge which we desire of the nature of things, can be obtained by a purely logical-philosophical analysis, *as distinct from* a continuation of scientific investigation—by passive contemplation as distinct from active investigation.

More profound knowledge, it thinks, is not to be obtained by a continuation of scientific investigation, but by going outside science altogether.

Here the place of logic in the system of scientific thought is altogether perverted. Logic is not regarded as an instrument in the hands of science itself, to aid in the criticism and formulation of scientific results. But it is regarded as an instrument for the extra-scientific criticism of science; that is, for the construction of a philosophic interpretation of the propositions of normal experience and of science, not based on empirical and scientific methods of analysis, but on some sort of philosophical method of analysis.

This postulate of a specialised logical-*philosophical* mode of analysis being needed in order to clarify and interpret the propositions not only of ordinary uncritical "common sense" but also of science, places the analytic philosophers, incidentally, in rather strange company.

It is not a new doctrine, nor one peculiar to logical analysis, that the empirical investigations of science need to be supplemented by some extra-scientific mode of knowledge, if the ultimate nature of things is to be revealed. This is the view, for instance, of all those theologians who hold that faith provides some special mode of apprehension. It is also the view of all those idealists who, in the words of Russell, hold that "a-priori reasoning can reveal otherwise undiscoverable secrets about the universe."

The logical-analytic philosophers, then, with their postulate of some extra-scientific non-empirical mode of logical-philosophical analysis, call on us to leave the path of science, where all hypotheses and analyses are founded on observation and verified by experience, and to embark on dubious philosophical adventures. Instead of investigating the real world, we are to "construct a world" out of supposedly logically ultimate elements. The "method of analysis" is, in fact, no method of analysis at all, but rather a method of speculation.

Indeed, this fact results from the very mathematical constructions in which the "method of analysis" had its first origins.

Russell's derivation of mathematics from logic started from nothing but the bare, abstract conceptions of "individual thing," "property" and "relation." Thence he defined "classes," thence "classes of classes," thence the natural numbers, thence the rational numbers, thence the real numbers, thence the imaginary or complex numbers, and so on. The whole of mathematics was represented as a logical construction, proceeding from definition to definition, a purely speculative enterprise which had nothing to do with the study of real things and their real quantitative characteristics, relationships and motions, and was of no significance as an instrument for measurement and calculation. In the same way, if Russell's projected philosophical analysis could be carried out, it would proceed by nothing but a series of formal definitions, an enterprise of philosophical speculation absolutely unrelated to investigation of the real world or to any practical activity.

Such speculations are always barren; and because they cannot be tested or verified, once embarked upon they always lead to endless empty arguments without conclusion.

This indeed is already the fate of Russell's mathematical speculation itself. In this mathematical speculation Russell had harked right back to the standpoint of the aristocratic slaveowners of ancient Greece, who had considered that mathematics dealt with "pure forms" in complete abstraction from material reality and practical concerns. Stressing the value of "apprehending this purely ideal character" of mathematics, Russell wrote that "not only is mathematics independent of us and our thoughts, but in another sense we and the whole universe of existing things are independent of mathematics."<sup>1</sup> Later, however, he had to admit that this standpoint was "more platonic than that which I now believe in,"<sup>2</sup> for the whole system of the deduction of mathematics from logic suffered a complete breakdown and became universally discredited. Logical and mathematical criticism has led to the conclusion that a system of mathematics cannot be

<sup>1</sup> Russell, *Mysticism and Logic*, ch. 4.

<sup>2</sup> Ibid., Preface.

deduced from logic, in the way that Russell attempted. In attempting such a deduction, Russell was compelled to introduce into his "system" several "axioms" and "postulates" for which no justification whatever can be found. And moreover it has been shown that no such set of axioms can be proved to be free of contradiction, a consequence fatal for any "formal system" such as that attempted by Russell. So we are as far away as ever from possessing even a logical analysis of mathematical knowledge, let alone of the whole mass of empirical and scientific knowledge.

Thus in the sphere of mathematics also, it will not do to carry out a logical analysis, attempting to construct a system of pure mathematics by a chain of speculative definitions. To elucidate the foundations of mathematics it is rather necessary to show how mathematics is derived from the investigation of real quantities and figures and motions: thus alone can we arrive at a conception of what mathematics is truly about, and what is the subject matter it is studying.

The purely speculative character of logical analysis, its absolute inability to arrive at any verifiable conclusions, its whole tendency to lead away from the path of knowledge into the path of empty argument about words, can be further exemplified by the writings of other "analytic philosophers," who followed the lead of Russell, but tried to improve upon Russell's own conclusions.

#### 6. "COMMON SENSE" GETS INTO DIFFICULTIES

In an article entitled *A Defence of Common Sense*,<sup>1</sup> G. E. Moore remarked: "I am not at all sceptical as to the truth of . . . propositions which assert the existence of material things: on the contrary, I hold that we all know, with certainty, many such propositions to be true. But I am very sceptical as to what, in certain respects, the correct analysis of such propositions is."

He continued: "It seems to me a surprising thing that so few philosophers . . . have attempted to give a clear account as to what precisely they suppose themselves to know, or to judge . . . when they know or judge such things as 'This is a hand,' 'That is the sun,' 'This is a dog,' etc., etc."

<sup>1</sup> In *Contemporary British Philosophy*, Second Series.



This is the familiar preamble of logical analysis. But unlike Russell, who thought he could carry his analysis straight to the ultimate elements of our knowledge of the external world, Moore approached the analysis in a most cautious and careful way.

"Two things only," he said, "seem to me to be quite certain about the analysis of such propositions (and even with regard to these I am afraid some philosophers would differ from me), namely, that whenever I know, or judge, such a proposition to be true, (1) there is always some *sense-datum* about which the proposition in question is a proposition . . . and (2) that, nevertheless, *what* I am knowing or judging to be true about this sense-datum is not (in general) that it is *itself* a hand, or a dog, or the sun, etc., etc., as the case may be."

After some explanation of the term "sense-datum," Moore raised the question of completing the analysis. And immediately he got into inextricable difficulties, in the midst of which Engels' words prove very relevant:—"But sound common sense, respectable fellow as he is within the homely precincts of his own four walls, has most wonderful adventures as soon as he ventures out into the wide world . . ."—as soon as he gets involved in analysis.

"There seem to me," said Moore, "to be three, and only three, alternative types of answer possible; and to any answer yet suggested, of any of these types, there seem to me to be very grave objections."

Here are the three types of analysis:—

(1) "What I am knowing really is that the sense-datum *itself* is part of the surface of a human hand."

(2) The second type of analysis is far more complicated. "When I know 'This is part of the surface of a human hand,' what I am knowing with regard to the sense-datum which is *of* that surface is . . . something of the following kind. There is some relation, R, such that what I am knowing with regard to the sense-datum is either: 'There is one and only one thing, of which it is true both that it is a part of the surface of a human hand, and it has R to this sense-datum,' or else: 'There are a set of things, of which it is true both that that set, taken collectively, are part of the surface of a human hand, and also that each member of the set has R to

this sense-datum, and that nothing which is not a member of the set has R to it.' ”

(3) “ What I am knowing with regard to the sense-datum which is the principal subject of the fact is . . . a whole set of hypothetical facts, each of which is a fact of the form: ‘ If *these* conditions had been fulfilled, I should have been perceiving a sense-datum intrinsically related to *this* sense-datum in *this* way,’ ‘ If *these* (other) conditions had been fulfilled, I should have been perceiving a sense-datum intrinsically related to *this* sense-datum in *this* (other) way,’ etc., etc.”

If Moore’s three types of analysis have been understood, it will be perceived that the third type roughly corresponds to the philosophy of Berkeley and Hume; the second type roughly corresponds to the philosophy of Locke; while the first, and simpler, type roughly corresponds to the philosophy of Mach.

This first and simpler type of analysis was the type of analysis worked out by Russell, which I examined in the first section of this chapter. Moore quite correctly pointed out that several other analyses were equally possible; “ but as to what is the correct analysis . . . there seems to me to be the *gravest doubt*.” And there he leaves the matter. Nor has he resolved these doubts in other of his several published attempts at philosophical analysis.

The position is, therefore, that when the analytic philosopher sits down to do a philosophical analysis, all sorts of different analyses, each more complicated and far-fetched than the last, present themselves; but the method gives no means whatever for deciding which of them, if any, is the right one, that is, the one which actually corresponds with the facts.

Mr. Wisdom, in fact, in one of his attempts to describe this method, went so far as to say: “ We must put the philosophic stimulus in the form, not of a question, but of a prayer—Please give me clearer apprehension of the Arrangement of the Elements in the Fact finally located by the sentence, ‘ aRb.’ ”<sup>1</sup> According to Mr. Wisdom, therefore, those who feel “ stimulated ” to undertake philosophical analysis must seek for truth in prayer; there is no other way, and the “ armchair philosopher ” finds himself resting on his knees, rather than on

<sup>1</sup> J. T. Wisdom: “ Ostentation,” in *Psyche*, vol. xiii.

the more usual support of such philosophers. But it is to be feared that even God cannot give him "apprehension" of the "Elements."

Thus on the showing of the analytic philosophers themselves, the logical-analytic method contains no germ of a method for reaching philosophical truth. On the contrary, it is productive merely of baseless and endless speculations.<sup>1</sup>

#### 7. THE PHILOSOPHICAL-SOCIAL TENDENCY OF LOGICAL ANALYSIS

Some years ago Sir James Jeans and the late Sir Arthur Eddington wrote popular books on the interpretation of the results of physical science. But instead of showing to the public how modern science was succeeding in unravelling "the riddle of the universe" and was advancing our knowledge of the constitution of matter and its laws of motion, Jeans and Eddington declared that the further the technique of physics advanced, the more mysterious and unknowable did the nature of the real world appear to be. Thus Jeans entitled his book, *The Mysterious Universe*, while Eddington wrote: "Something unknown is doing we don't know what—that is what our theory amounts to."<sup>2</sup>

Analytic philosophers have pointed out that these writings of Jeans and Eddington were extremely muddled and lacking in clear logical analysis. This was very true. And yet the philosophical activity of logical analysis is itself very closely related indeed to the philosophical activity of Jeans and Eddington.

Logical-philosophical analysis does for the sophisticated and scientific elite what the crude idealism of Jeans and Eddington did for the unsophisticated general public; namely, it obscures for them the fact that scientific advance is steadily building up a clear materialistic picture of the world, and encourages instead vague and baseless speculation about "what things are really like," what "lies behind" our empirical knowledge.

It is in this way that logical-analytic philosophy inherits and

<sup>1</sup> This conclusion agrees with the criticism of the analytic method contained in R. G. Collingwood's *Autobiography* (1939).

<sup>2</sup> Eddington: *The Nature of the Physical World*, p. 291.

continues to play the very same philosophical-social role as was played by the philosophy of Berkeley and the others who followed after him.

In the present century, tremendous new advances have been won in all spheres of natural science, particularly in the basic science of physics. People have spoken of "a revolution in natural science." The old mechanistic physics has been superseded; there is a wider, completer synthesis of our knowledge of the constitution and laws of motion of matter, and this increased knowledge is at the same time increased power to utilise natural forces for our own ends.

But the same tendency which arose in the 18th century in regard to science continues to operate today. A scientific view of the world cannot be accepted. It contradicts too harshly the traditional notions of a class society. It shows too plainly how, having gained ever wider objective knowledge, men could combine to utilise the mastery over nature which this gives in the interests of the whole of the people. While the uninformed millions remain in relative ignorance and continue to be doped by varied forms of superstition and irrational teachings, those who are versed in scientific knowledge draw back from the consequences of the advance of science. They begin to philosophise, to interpret, to analyse, to speculate. This is the social significance of the philosophical method of logical analysis.

Corresponding to the advancement of science, and to the generality of its basic theories and the wide extension of its development and applications, the philosophical interpretation of our knowledge by logical analysis takes on an extraordinarily abstract form, plunges into the most complicated speculations, and makes use of pseudo-scientific and pseudo-mathematical expressions in order to construct a world of metaphysical speculation.

In all essentials this speculation is simply a continuation under modern conditions of the old philosophy of Berkeley, Hume, Mach and the rest, which pretends to give an extra-scientific interpretation of the results of science. Whether science is interpreted in terms of "sensations and ideas," or of "elements," "sense-data," or any other of the philosophic concepts in use today, the upshot is the same: to *reject* the

clear objective import of scientific knowledge, as an ever-developing and ever more accurate comprehensive picture of the objective world; to obscure the fact that we have gained and are gaining objective knowledge in relation to which we need, not a speculative interpretation, but an understanding of how to apply it fully to gain a mastery over nature and over our own destinies.

## CHAPTER 8

### LOGICAL ATOMISM

#### 1. LOGICAL FORM

A SURVEY of the logical-analytic method needs to be supplemented by some examination of the conceptions of formal logic which provided its basis, and of which it made use in carrying out its attempted "analyses." "Logic," said Russell, "is the essence of philosophy."<sup>1</sup> The speculations and interpretations of knowledge worked out by analytic philosophers all make use of the Russellian system of logic, and the attempts to construct a world by methods of analysis are attempts to construct a world conforming to the postulates of that logic.

Fundamental for Russell's view of logic, and for the whole logic of the modern logical schools, is the idea of *logical form*.

"In every proposition and in every inference," Russell explained, "there is, besides the particular subject matter concerned, a certain *form*, a way in which the constituents of the proposition or inference are put together."<sup>2</sup>

He proceeded to explain by examples what he meant by the *form* of a proposition.

"If I say 'Socrates is mortal,' 'Jones is angry,' 'the sun is hot,' there is something in common in these three cases, something indicated by the word 'is.' What is in common is the *form* of the proposition, not an actual constituent. If I say a number of things about Socrates—that he was an Athenian, that he married Xantippe, that he drank the hemlock—there is a common constituent, namely Socrates, in all the propositions I enunciate, but they have diverse forms. If, on the other hand, I take any one of these propositions and replace its constituents, one at a time, by other constituents, the form remains constant, but no constituent

<sup>1</sup> Russell: *Our Knowledge of the External World*, ch. 2.

<sup>2</sup> *Ibid.*, p. 42.

remains. Take (say) the series of propositions, 'Socrates drank the hemlock,' 'Coleridge drank the hemlock,' 'Coleridge drank opium,' 'Coleridge ate opium.' The form remains unchanged throughout this series, but all the constituents are altered. Thus form is not another constituent, but is the way the constituents are put together."

All this is obvious enough. For example, it is obvious that "Socrates drank hemlock" and "Coleridge ate opium" are propositions of one form, whereas "Anyone who drinks hemlock will die," or "Anyone who eats opium will become dozey" are propositions of a different form. Thus the first pair are particular and the second pair are general propositions: this expresses the difference in the forms of the propositions.

Russell went on to assert that: "It is forms, in this sense, that are the proper objects of philosophical logic."<sup>1</sup>

Thus according to him, the task of "philosophical logic" was simply to study "forms"—to study propositional forms in abstraction from the real world which is reflected in those forms on the one hand, and from the processes of thought which create those forms on the other hand.

This means that the first and fundamental task of logic was to work out, on this very abstract basis, the main series of the logical forms of propositions. This task was undertaken in the opening sections of the *Principia Mathematica*, written by Russell in collaboration with A. N. Whitehead, and carried further in L. Wittgenstein's *Tractatus Logico-Philosophicus*. Perhaps Latin titles were chosen for these works in order to warn off the vulgar from prying into their formal mysteries. Be that as it may, it is possible to set forth fairly simply their fundamental conclusions about the series of the forms of propositions.

This series begins with the "elementary proposition"—the simplest possible form of proposition. More complicated forms of proposition are then derived from the elementary form by a series of simple logical operations. The whole series is ingeniously worked out without any reference whatever being made to the real world or to any actual process of thought.

An *elementary proposition* is one which says that a certain

<sup>1</sup> Russell: *Our Knowledge of the External World*, ch. 2.

thing has a certain property, or that certain things stand in a certain relationship to one another. Thus it is constructed from the three basic terms, "thing," "property" and "relation."

We then go on from "elementary" to more complex forms of proposition by a procedure of assigning one or other of two "values" to propositions—either "truth" or "falsity." Having introduced these "values" into logic, we can then easily construct new forms of propositions out of elementary propositions. These will be called *truth functions*, because they are defined in terms of the "truth" or "falsity" of the elementary propositions from which they are constructed.

Thus let us start with a single elementary proposition, which may be denoted by the letter "p." Then "p" is either true or false. And so we may construct another proposition, which may be written "not-p," which is defined as being true when "p" is false and false when "p" is true.

In this way a new form of proposition, the "negative" proposition, is derived from the elementary proposition.

According to this system of logic, then, the "negative" form of proposition, "not-p," is the simplest form of "truth function" which may be derived from a single elementary proposition "p," when the "values" of "truth" and "falsity" are assigned to it.

If, then, in place of one elementary proposition we take two, which may be denoted by the letters "p" and "q," we get a lot more "truth functions." These are the "compound" forms of propositions (propositions which are compounds of two or more elementary propositions) which, in ordinary language, would be written:

- "p implies q,"
- "either p or q,"
- "not both p and q,"
- "p and q."

Logicians have given many accounts of such compound propositions. But according to Russell they are simply truth functions. According to Russell, and this thesis was developed in detail by Wittgenstein, such forms of compound propositions



can be defined exclusively in terms of the truth or falsity of the elementary propositions from which they are constructed.

Thus, just as "not- $p$ " can be defined as the proposition which is true when " $p$ " is false and false when " $p$ " is true, so, for example, can " $p$  implies  $q$ " be defined as the proposition which is false when " $p$ " is true but " $q$ " is false, but which otherwise is true. Thus " $p$  implies  $q$ " says that, as a matter of fact, whenever " $p$ " is true, " $q$ " is true as well. All that it says can be defined in terms of the truth or falsity of the elementary propositions which are its constituents, or from which it is constructed. Again, " $p$  and  $q$ " can be defined as the proposition which is true when " $p$ " is true and " $q$ " is true, but which otherwise is false. And so on.

There is no need to go into detail about all the truth functions which can now be constructed; for quite clearly, we can now construct truth functions of any order of complexity.<sup>1</sup>

It is interesting to note, however, certain consequences which follow from this logical analysis of truth functions.

Thus in the first place, certain forms of expression turn out to be exactly equivalent one with another. For example, "not both  $p$  and not- $q$ " and " $p$  implies  $q$ ." If we work out the definition of these two expressions in terms of the truth or falsity of their constituents, " $p$ " and " $q$ ," we will find that the result is the same in both cases—namely, both these compound expressions are defined as being false when " $p$ " is true and " $q$ " is false, but otherwise as being true. They are therefore exactly equivalent. Hence there are many different ways of expressing exactly the same proposition. The equivalence of "not-not- $p$ " with " $p$ " is another example.

And further, this logical analysis claims to throw considerable light upon the logical nature of deductive inference.

For instance, if I know that " $p$  implies  $q$ ," and that " $q$  implies  $r$ ," I can infer deductively that " $p$  implies  $r$ ." If I have established the first two propositions, no further investigation is needed to establish the third. This is explained from the fact that, if I work out the logical conditions for the truth of " $p$  implies  $q$ " and " $q$  implies  $r$ ," I will find that these conditions include the conditions for the truth of " $p$  implies  $r$ ."

<sup>1</sup> In *Principia Mathematica* Russell includes truth functions as "elementary" propositions. He calls them "molecular" as distinct from "atomic."

Therefore, if I have discovered from observation that "p implies q" and that "q implies r," it needs no further observation to discover that "p implies r," for this is contained in what I have discovered already.

Having now defined "elementary" propositions and "truth functions" of elementary propositions, we can conclude the series of forms of propositions by constructing *general propositions* or *generalisations*.

An elementary proposition asserts some property or some relationship of a particular thing or subject, and a truth function asserts some combination of properties or relationships. Thus they assert that something is true of some particular subject. Generalisations or general propositions are then very simply constructed by asserting that something is true of *all* subjects or, if not of all, then of *some*.

Thus let us use the letter "x" to stand for any subject of an elementary proposition, that is, for anything of which some property or relationship or combination of properties and relationships may be asserted. Then two types of generalisations may be constructed:—

- (i) The assertion of something of *every* x.
- (ii) The assertion of something of *some* x, or of at least one x.

Using the expression " $f(x)$ " to denote the assertion of something of "x," then these two types of generalisation may be expressed as follows:—

- (i) For every x,  $f(x)$  is true.
- (ii) There is at least one x, of which  $f(x)$  is true.

Generalisations may be of any order of complexity, corresponding to the complexity of what is asserted by them. But however complex, their basic mode of construction is as represented above.

Such, then, is the catalogue or classification of the forms of propositions according to the Russell-Whitehead-Wittgenstein logic. There are three main forms of propositions, namely, elementary propositions, truth functions and generalisations. And it will be seen that starting with the elementary proposition and the postulate that an elementary proposition is either true or false, truth functions and generalisations are

derived from elementary propositions by a few simple logical operations.

## 2. WHAT IS A PROPOSITION?—THE PICTORIAL THEORY

I have now attempted to demonstrate the elements of the logical apparatus by means of which Russell proposed to reform philosophy, and to solve philosophical problems, by the method of logical-philosophical analysis. But it will be found that this apparatus at once begins to produce some strange results.

For the logical theory is based on a certain view of the nature of a proposition, and its correspondence with what it signifies. All propositions are derived from elementary propositions in such a way that their truth or falsity depends on that of elementary propositions, and the elementary proposition is a definite arrangement of terms which stand for definite "objects"—for individual things, their properties and relations. If a term does not stand for an object, then it can be given no meaning in the proposition. The objects are combined in fact in a definite way: individuals are related by certain relations and not by others, an individual has a certain character and not another character. If the terms in the proposition are combined in a way corresponding to that in which the objects which they stand for are combined in fact, then the proposition is true; and otherwise it is false.

The development of the theory, implicit in the Russell logic, of the nature of propositions and of their correspondence with facts (or of truth and falsity) has been most clearly and consistently developed by Wittgenstein, in his *Tractatus Logico-Philosophicus*.

Dealing with the basic form of proposition, the elementary proposition, Wittgenstein said that *a proposition is a picture of a fact*.

"We make to ourselves pictures of facts," he said. "The elements in the picture stand, in the picture, for the objects. That the elements of the picture are combined with one another in a definite way, represents that the things are so combined with one another."<sup>1</sup>

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 2.131.15.

He went on to explain that: "What every picture, of whatever form, must have in common with reality in order to be able to represent it at all—rightly or falsely—is the logical form, that is, the form of reality."<sup>1</sup>

Thus: "The picture agrees with reality or not; it is right or wrong, true or false."<sup>2</sup>

And: "In order to discover whether the picture is true or false we must compare it with reality. It cannot be discovered from the picture alone whether it is true or false."<sup>3</sup>

He went on to say that: "The logical picture of the fact is the thought." And: "The thought is the significant proposition."<sup>4</sup>

So the (elementary) proposition is a certain arrangement of terms; and that the terms are arranged in a certain way in the proposition, says that the objects which those terms signify are correspondingly arranged in the fact. If the objects are so arranged in fact, the proposition is true; otherwise it is false.

Such is the simple, and, to use a mathematical phrase, elegant, theory of the nature and signification, and truth and falsity, of propositions, which is implicit in and results from the formal logical analysis.

A proposition is a picture of a fact, and the relation between proposition and fact is a pictorial relation.

This seems to accord with the very strictest empiricism. Whether a proposition is true or false must be discovered by examining the facts. "There is no picture which is a-priori true."<sup>5</sup>

But for all that, the pictorial theory entails consequences respecting the nature of facts; more exactly, consequences respecting the "logical structure" of facts, the "logical structure" of the world. Having begun with the forms of propositions, we find ourselves dealing with "the form" of the world. We began with logic, but it has led into metaphysics.

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 2.18.

<sup>2</sup> Ibid., 2.21.

<sup>3</sup> Ibid., 2.223.224.

<sup>4</sup> Ibid., 3, 4.

<sup>5</sup> Ibid., 2.225.

## 3. LOGICAL ATOMISM—A SYSTEM OF METAPHYSICS

From a logical analysis of propositions, Wittgenstein, in complete accordance with the Russell logic, arrived at a logical analysis of the form of the world. (In his *Tractatus* he started with the latter analysis, which is one of the things that makes this book unnecessarily hard to understand.)

"The world is everything that is the case," said Wittgenstein, and went on to explain what he meant by this. "The world is the totality of facts, not of things. The world divides into facts. Any one can either be the case, or not be the case, and everything else remain the same."<sup>1</sup>

Just as the elementary propositions are the basic sort of propositions, from which all other forms of propositions can be constructed, so, corresponding to the elementary propositions, and "pictured" by them, there are elementary—or "atomic"—facts. Each is logically independent of every other.

And so the logical-metaphysical analysis continues:

"What is the case, the fact, is the existence of atomic facts. The totality of existent atomic facts is the world. Atomic facts are independent of one another. From the existence or non-existence of an atomic fact we cannot infer the existence or non-existence of another."<sup>2</sup>

And just as elementary propositions are combinations of terms, so atomic facts are combinations of objects. And just as the terms by themselves have no meaning except in so far as they can be combined in propositions, so the objects have no existence apart from their combination in facts.

"An atomic fact is a combination of objects (entities, things). It is essential to a thing that it can be a constituent part of an atomic fact."<sup>3</sup>

Further: "The object is simple. Objects form the substance of the world. Therefore they cannot be compound." And: "In the atomic facts objects hang one in another, like the members of a chain. In the atomic fact the objects are combined in a definite way. The way in which the objects

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 1.1.2.21.

<sup>2</sup> *Ibid.*, 2.04.061.062.

<sup>3</sup> *Ibid.*, 2.01.011.

hang together in the atomic fact is the structure of the atomic fact.”<sup>1</sup>

Turning back now to Russell, the same view of “the nature of the world” is to be found expressed in more popular and easily comprehensible—if less “scientifically accurate”—language:

“The existing world consists of many things with many qualities and relations. A complete description of the existing world would require not only a catalogue of the things, but also a mention of all their qualities and relations. We should have to know, not only this, that and the other thing, but also which was red, which yellow, which was earlier than which, which was between which two others, and so on. When I speak of a ‘fact,’ I do not mean one of the simple things in the world; I mean that a certain thing has a certain quality, or that certain things have a certain relation.”<sup>2</sup>

It emerges, therefore, from the logical theory of the forms of propositions, which postulates the elementary proposition as the basic form of proposition, and as a picture of the fact, that the world itself is of a certain form. The world consists of “atomic facts,” each of which is independent of every other. And the constituents of these “atomic facts” are “simple objects.”

This general view of the basic logical structure of the world, derived from formal logic, has been aptly called “Logical Atomism.”

But this remarkable result was not reached by any process of generalisation from the mass of empirically verified results of science. Indeed, it has, and can claim to have, no empirical foundation whatever. It is deduced from pure logic.

It turns out, therefore, that the logicians and analytic philosophers who differentiated themselves so carefully from “the classical tradition,” and who overthrew that tradition by a Galilean revolution, have not really departed from “the classical tradition” by a single inch. Their’s too is a case in which “a-priori reasoning reveals otherwise undiscoverable secrets about the universe.” For by no other method could they have discovered such a “secret” as that the universe

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 2.02.03.031.032.

<sup>2</sup> Russell: *Our Knowledge of the External World*, p. 51.

consists of simple objects, arranged in atomic facts, each of which is absolutely independent of every other.

#### 4. CRITIQUE OF LOGICAL ATOMISM

What is wrong with the theory of logical atomism? The objections to it may be summed up under three heads. (1) It rests on totally unjustified metaphysical assumptions. (2) It totally fails to correspond with our real knowledge of the real world. (3) Its logical schemes about the forms of propositions are without foundation and serve no other purpose than to give a "logical" appearance to subjective idealism.

(1) The standpoint of logical atomism obviously stands or falls by the concept of the elementary proposition, and of the atomic fact which is signified by an elementary proposition.

For all other propositions are constructed from elementary propositions, which are supposed to picture atomic facts, and their truth or falsity depends entirely on that of the elementary propositions. It follows from this that the truth or falsity of any proposition, whatever its form, depends on whether certain atomic facts, picturable in elementary propositions, are or are not the case. Consequently it also follows that the complete truth about the world, or about any part of the world, is theoretically expressible in a set of elementary propositions and that, if this were done, no other propositions (truth functions or generalisations) would add anything to that truth.

So logical atomism rests on the assumption that the complete truth about the world is expressible in elementary propositions. If that is really so, then let us proceed to express it, or at least a part of it, in elementary propositions, bearing in mind that an elementary proposition is one which is (a) logically independent of any other proposition, and (b) is the statement of an atomic fact. Can this enterprise be carried out? The answer is that it cannot.

Not much help is to be received from the actual exponents of logical atomism, for they have never thought it necessary to furnish even a single example of an elementary proposition. For my part, I have often searched, and searched in vain, both in my inner consciousness and in my consciousness of the

outside world, for an elementary proposition. But I have never found one. And reflection shows that no one else is likely to be more fortunate.

Take for instance propositions about material objects—"This flower is red," "This stone is heavy," "This man is fat," etc.; or: "This is a flower," "This is a stone," "This is a man." Such propositions are certainly expressed in the elementary form, "*s* is *p*"; but they are not absolutely elementary propositions. They certainly do not state atomic facts; they are not logically independent of any other propositions. For things like flowers and stones and men, and their qualities like being red and being heavy and being fat, are not simple and unanalysable things and qualities; so facts involving such things and their qualities, and propositions stating such facts, are neither atomic nor elementary, in the logically absolute sense.

Is the case any better if we try to deal with propositions, not about things on the ordinary perceptual level, but about the ultimate constituents of the material world? No, this line of research holds out no hopes for the seeker after elementary propositions. The most ultimate constituents of the material world that have been discovered up to the present consist of things like electrons; but we cannot formulate elementary propositions about them. We cannot say, "this electron," and pin that name on to one particular simple and unanalysable individual; and even if we could, we could not ascribe simple and unanalysable qualities and relations to such individuals.

One line of logical thought has tried to find, not in "things" but in "events" the ultimate logical or metaphysical constituents of the world. But here again, what is to be included in one single event is altogether arbitrary, nor can precise and simple qualities and relations be ascribed to events. There may be sense in a "logic of events"—but it could not be an atomistic logic. In the search for something logically-metaphysically simple and ultimate, "events" are sometimes whittled down to "point-events," or "point-instants"; and the ultimate elementary propositions would then be infinite in number, expressing the ultimate qualities and relations attached to every point-instant in the total system of space-time. But yet it is clear that point-instants, and the properties of matter



at a point-instant, are not ultimate logical-metaphysical constituents of the world, but could only be defined by means of an elaborate process of mathematical analysis.<sup>1</sup> No elementary propositions about point-instants could possibly be formulated.

In general, then, the conclusion emerges that no proposition about the material world and material objects, as ordinarily understood, can possibly be a logically elementary proposition, in the sense required by logical atomism.

But can we perhaps formulate elementary propositions which refer, not to the objective material world, but to the content of one's own immediate experience?

The hunt for elementary propositions is very like the Hunting of the Snark. We must seek them in "some place unfrequented by man"; since in general people do not formulate propositions exclusively about their own immediate experiences.

Suppose then I say, "I am seeing something red." Can a proposition such as this be a logically elementary proposition? Evidently not: for even if "something red" can be regarded as an ultimate constituent of the world of experience, the term "I" and the relation of "seeing" cannot possibly be regarded as ultimate, simple and unanalysable. An elementary proposition which refers to immediate experience would have rather to be sought in such expressions as: "Red here-now"; where "red" stands for the simple object, a colour, that I am immediately aware of, and "here-now" stands for another simple object, its position in my "visual field." Here at last, perhaps, is an absolutely elementary proposition; here at last, perhaps, the logical snark is entrapped in its lair in the regions of immediate experience.

But suppose someone really did say, "Red here-now." What would he be understood to mean? Clearly, he would be understood to mean that he was seeing something red; what he would be understood to mean would be something rather indefinite, and certainly not a logically elementary proposition. So if a logical atomist were to make this remark, he would have to explain that what he would be understood to mean by it was something different from

<sup>1</sup> Cf. Whitehead: "The Method of Extensive Abstraction," explained in his two books, *The Concept of Nature* and *The Principles of Natural Knowledge*.

what he "really" meant; for what he "really" meant would refer to alleged objects contained in his own immediate experience, which would be absolutely inaccessible to anyone else. So what *would* he "really" mean? The answer is—nothing. What he would be trying to say would be something incommunicable, which is only to say that he would be saying nothing at all. Hence, just like the snark, the logically elementary proposition continues to be absolutely elusive.

I think it would be futile to hunt further for logically elementary propositions. It can be positively asserted that no one has ever produced an example of one, and any attempt to do so leads to such stupid discussions as to provide abundant proof that the whole conception is unreal and artificial. Elementary propositions, in the logically absolute sense required by logical atomism, have therefore no relevance at all to the analysis of actual processes of thought, or to the expression of actual facts about the world.

The elementary proposition and the atomic fact turn out to be mythological creations, and so the bottom falls out of the system of logical atomism.

(2) If on the one hand logical atomism bases itself on an entirely fictitious picture of an imaginary universe composed of disconnected atomic facts, on the other hand it totally fails to correspond with what we know to be the character of the real universe. In the real world things change and are interconnected. But the logic of logical atomism tries to express change in terms of a temporal series of changeless and absolutely static "facts," and to express interconnection in terms of disconnection—the interdependence of things one on another in terms of the independence of atomic facts.

In the changing world one event arises out of another, processes interpenetrate and modify one another, nothing exists in isolation, but everything is modified and changed by its relationships with other things. To all this the atomistic view of the world stands in strange contrast. It states in the most rigid way the original view of Hume, when he said: "All events seem entirely loose and separate. One event follows another, but we can never observe any tie between them. They seem conjoined, but never connected." The dynamic flow and interpenetration of processes which we find

in the world is artificially disrupted into separate unconnected atomic events or facts, each of which is supposed to be capable of expression in a proposition logically independent of every other proposition.

Thus the thesis of logical atomism, that the whole truth about the world is expressible in elementary propositions, each expressing an atomic fact, each logically independent of every other, is completely untenable.

On the contrary, the truth expressible in logically independent propositions about disconnected facts is not and cannot be the whole truth. It is simply that part or aspect of truth which expresses the superficial features and external relations of things and is obtained merely from a first uncritical observation of them. It does not include the essential features and internal relations of things which are discoverable only by deeper investigation and inquiry.

Our discovery of truth—in other words, our knowledge—always passes through two distinct stages. The first stage is the stage of the preliminary observation of things, which may be called the stage of *perceptual* knowledge, in which we take note of the main facts directly evident to observation. But knowledge is carried further by scientific investigation to a second stage of more profound *rational* or *scientific* knowledge, in which we discover the reasons for the observed facts, the underlying interconnections and laws of motion.

That knowledge thus advances through distinct stages, from superficial perceptual knowledge to more profound rational or scientific knowledge, was already noted by Hegel (although he misunderstood the process, representing it as a process of theoretical speculation rather than of practical scientific investigation). It was often stressed by Marx. And the difference between the two stages of knowledge was summed up by Mao Tse-tung in his essay on the theory of knowledge, where he wrote: "The reason why rational knowledge is different from perceptual knowledge is that perceptual knowledge concerns the separate aspects . . . *the external relations* of things, whereas rational knowledge takes a big stride forward to reach the wholeness, the essence and the *internal relations* of things, discloses the internal contradictions of the surrounding world, and is therefore capable of grasping

the development of the surrounding world in its totality, in the *internal relations* between all its aspects."<sup>1</sup>

All this is not only ignored but explicitly denied by the theory of logical atomism. For, following from its concept of logical analysis, this theory explicitly denies that there are or can be *internal* relations between things, and asserts that there exist and can exist only *external* relations.<sup>2</sup>

An *internal* relation is a relationship such that the nature of things is necessarily conditioned and changed by their entering into that relationship. An *external* relation, on the other hand, is one which makes no difference to the nature of the things which enter into the relationship. Are there, then, internal as well as external relations? Of course there are. When, for example, we make such statements as "This is red," "That is green," "This is bigger than that," "This happened before that," and so on, we are making statements about the merely external aspects and relationships of things. But when we say "This depends on that," "This causes that," "This and that oppose and interpenetrate," and so on, we are making statements about the internal relationships of things.

Logical atomism tries to express all internal relations as external relations, for its whole logic is exclusively a logic of external relations.

This is shown up most clearly if we consider the account which, following the theory of "truth functions," this logic gives of propositions of the form "if p then q" or "p implies q." Such a proposition, which states an implication or a relation of the conditioning of one thing by another, is represented as exactly equivalent to a proposition which merely states a conjunction. The proposition "p implies q" is represented as simply stating that as a matter of fact it is not the case that "p" is true and "q" false.

Suppose, for example, that we tell a child: "If you put your hand in the fire it will hurt." According to logical atomism, all that this says is: "It is not the case that you will both put your hand in the fire and not feel pain." Thus

<sup>1</sup> Mao, *On Practice*. (My italics, M.C.)

<sup>2</sup> See, for example, G. E. Moore, *Philosophical Studies*, Chapter 9, "External and Internal Relations."

all it expresses is a merely external "matter of fact" relationship. And yet, on the contrary, it expresses an internal relationship. For the human hand is so constituted by nature that, under normal circumstances, putting it in the fire is necessarily painful. This is an internal and not merely an external connection.

Russell, Moore, Wittgenstein and their followers argue that there are no internal relations because their logic reduces all internal relations to external relations. But on the contrary, internal relations plainly do exist, for we do discover them by inquiry and verify the truth of the discovery in practice. Hence far from the Russell logic having proved that internal relations do not exist, the existence of internal relations proves that the Russell logic is wrong.

The discovery of internal relations marks the advance of knowledge from a merely superficial knowledge of facts to the rational and scientific knowledge of the connections of facts, of the underlying causes. It is evident, therefore, that the theory of logical atomism is a logical theory which seeks to reduce all knowledge to the level of superficial, perceptual knowledge, and opposes the advance of knowledge to the rational and scientific level.

(3) Russell and the other logical atomists claim that their type of logic is a significant advance upon the traditional Aristotelian logic. For Aristotle, they point out, all propositions were subject-predicate propositions and all inference was syllogistic, whereas Russell's analysis provided a far more comprehensive theory of the forms of propositions and of deductive inference.

Aristotle's logic was primarily a logic of classification. This limitation corresponded, indeed, to the level of development of the science of his time, which still moved to a great extent within the stage of classification. Thus Aristotle treated propositions as first assigning various properties to things and then classifying things according to their properties. Russell's system of logic embraces a wider range of propositional forms, including the statement of relationships and various compound forms of proposition, and, therefore, a wider range of forms of inference. And this in turn corresponded to the higher level of the development of science two thousand years after

Aristotle. In this respect, there can be no doubt that the "modern" logic did represent an advance on the logic of antiquity.

However, while there was an advance in distinguishing a greater variety of forms of propositions and forms of inference, in other and more important aspects of logical theory there was no advance at all but the very opposite. What was bad in Aristotle's logic was made worse in Russell's, while what was good was lost.

The chief fault of Aristotle's logic was that it tended to impose a metaphysical rigidity into the processes of thought—and this tendency was carried further by his successors, the Scholastics of the middle ages. Their logic assumed that everything in the world could be fitted into some definite compartment within a fixed scheme of classification. This metaphysical outlook has not been overcome but has rather been enhanced by the "modern" logicians, when they make out that the world must be thought of as an assemblage of atomic facts, each of which consists in some fixed and definite thing having some fixed and definite property or standing in some fixed and definite relation to other things.

On the other hand, the great merit and strength of Aristotle's logic was that it regarded thinking as a reflection of reality, and so endeavoured to trace out the forms in which reality was reflected in thought and the forms of valid inference and reasoning. Logic was thus the science of the laws of thought, and sought to demonstrate the laws of rational thinking, the logical connections between thoughts by following which thought could faithfully reflect the real connections between things. But this positive feature of the traditional logic has entirely vanished from the theory of logical atomism. The endeavour to build the science of the laws of thought as an instrument for knowing the world outside us has been given up. Instead, logic has been based on the construction of propositional forms without any reference either to real material processes or to their reflection in thought. It has busied itself with constructing logical relations of dependence and independence, equivalence and non-equivalence, containment and non-containment, between forms of propositions without regard to the real relations between things. Such a

logic does away with all rational order and connection in the world outside us, which is declared to be merely an aggregate of unconnected and inexplicable "facts."

As compared with the traditional logic, logical atomism reveals itself as simply and solely a product and instrument of the modern theories of subjective idealism. For subjective idealism, nothing exists except sense-data, isolated "facts" of "experience"; the objective material world, including all real and rational connections between things, is a mere invention, a logical construction. The logic of logical atomism is an instrument well devised for expressing precisely this point of view. It simply brings out and makes explicit the logic which from the time of Berkeley and Hume was implicit in the theories of subjective idealism. By so doing, it pretends to bestow on subjective idealism the prestige of a theory which perfectly accords with logic. What it really does, however, is to confound logical theory by introducing into it the fallacies of subjective idealism.

If we reject the claims of logical atomism to have made an advance on the traditional logic this does not imply a conservative attitude in logic, simply clinging to the old in face of proposed innovations. The narrow, metaphysical approach of the traditional logic must certainly be superseded by a new, dialectical approach in logic. And in fact the basis for the necessary advance in the science of logic was laid by Hegel, some time before the logical atomists appeared on the scene. Their attitude to Hegel, which is one of boundless scorn based on total ignorance, is but one sign of their retrograde and anti-scientific outlook.

Hegel's great book, *The Science of Logic*, was divided into two sections, called by him, "Objective Logic" and "Subjective Logic" respectively, the first section being again divided into "The Doctrine of Being" and "The Doctrine of Essence." The considerable confusion and obscurity in Hegel's logic, together with the artificial manner in which he effects the transition from one point to the next, of which Russell and his colleagues have often complained, was a product of the obscure and artificial system of "objective idealism" in terms of which everything that Hegel wrote was expressed. But it is possible, as Marx afterwards showed, to

disentangle Hegel's permanent contribution to science from its idealist trappings—the objective idealist “system” and the peculiar lingo or jargon which Hegel adopted to express it. If that is done, then it appears that Hegel's basic innovation in logic was the idea that logical theory must be worked out in correspondence with the stages of development of thought as it approaches an ever more comprehensive knowledge of reality. Thus in “The Doctrine of Being” he deals with the reflection in thought of the external features and connections of things, and in “The Doctrine of Essence” of the essential features and internal connections of things; while in the “Subjective Logic” he seeks to show how the forms of judgment evolve corresponding to the content of the judgment. In this way Hegel broke completely with the metaphysical approach of the traditional logic while retaining its positive idea that thought is the reflection of reality.



## CHAPTER 9

### THE PHILOSOPHY OF WITTGENSTEIN

#### I. DRAWING A LIMIT TO THINKING

I HAVE already indicated something of the contribution made by Wittgenstein in the development of the logical standpoint of Russell; particularly his elaboration of the "pictorial" theory of propositions, elementary propositions being regarded as "pictures" of facts.

But if Wittgenstein, in his *Tractatus Logico-Philosophicus*, developed, sharpened and refined the basic logical conception of the proposition as employed in the Russell logic, he also thought that he could carry much further Russell's application of logical theory in the solution of the problems of philosophy.

Take, for instance, "the problem of the external world." Is there an external world, and if there is, of what does it consist, what are its ultimate elements? Russell thought that this problem could be answered by working out the logical analysis of propositions referring to external objects. But, as I have shown, neither he himself nor his colleagues and followers ever succeeded in reaching agreement on any analysis which could be said definitively to answer the "problem."

In the light of his further analysis of the basic logical nature of propositions, Wittgenstein thought that such "problems" could be treated in quite another way. For instance, philosophers have argued continually as to whether propositions about material objects refer merely to the order of sensations or "sense-data," or whether they refer to independently existing objects external to consciousness or experience.

Russell posed this as the question: Which is the right way of analysing propositions about material objects? Wittgenstein replied that if you understand the logical nature of propositions, you cannot ask such a question. A significant proposition is a *picture* of the facts, which can be *compared* with the facts to test whether it is true or false. So when one

philosopher says: "This material object is a complex of sense-data," and another philosopher says: "This material object is not a complex of sense-data, but exists independent of all sense-data"—of what facts are these two assertions pictures, and how are they to be compared with facts to test which is the truth and which is falsehood? Both assertions are revealed as pseudo-assertions, pseudo-propositions, which may appear to be significant to persons who do not understand logic, but which an understanding of logic reveals as insignificant.

The "problem of the external world," therefore, as presented by Russell and other philosophers, is not to be solved by working out either one or another "analysis" of propositions about external objects. But it is solved by showing that the whole way in which the problem is put is based on a misunderstanding of the basic logical nature of propositions, or, as Wittgenstein expresses it, "of the logic of our language."

Thus in the Preface to his *Tractatus Logico-Philosophicus*, Wittgenstein summed up his philosophical aim as follows:—

"This book deals with the problems of philosophy and shows, as I believe, that the method of formulating these problems rests on the misunderstanding of the logic of our language. . . ."

For Wittgenstein, therefore, the task of philosophy is to analyse the logic of our language. And this means, to elucidate the logical principles which determine what forms of words are significant and what insignificant, and to elucidate the logical principles which determine what forms of questions can be significantly asked and answered, and what cannot be significantly asked, and cannot be answered.

It is in this way that he maintained that "the problems of philosophy" are "in essentials finally solved." But they are solved by showing that they are not real problems at all, because they "rest on the misunderstanding of the logic of our language." The formulation of the problems is non-sensical—and that is the answer to them.

Wittgenstein says of his book, therefore, in the Preface: "The book will, therefore, *draw a limit to thinking*, or rather—not to thinking, but to the expression of thoughts. For in order to draw a limit to thinking we should have to be able

to think both sides of this limit (we should therefore have to be able to think what cannot be thought). *The limit can, therefore, only be drawn in language, and what lies on the other side of the limit will be simply nonsense.*"

## 2. SAYING AND SHOWING

When Wittgenstein began to "draw a limit to thinking," however, that is to say, to "what can be said," he made a qualification. He drew a distinction between what can be "said," and what can be "shown."

"Propositions," he said, "can represent the whole reality, but they cannot represent what they must have in common with reality in order to be able to represent it—the logical form. . . . Propositions cannot represent the logical form: this mirrors itself in the propositions. That which mirrors itself in language, language cannot represent. That which expresses *itself* in language, *we* cannot express by language. The propositions *show* the logical form of reality. They exhibit it. . . . What *can* be shown *cannot* be said."<sup>1</sup>

This means that when (in philosophical mood) we may want to say "something metaphysical," although we cannot "say" it, nevertheless it can be "shown." We cannot "say" in significant propositions what is the "ultimate nature" of the "reality" which we picture in our thoughts. But nevertheless, if we understand "the logic of our language," and understand "the limits" of "what can be said," that which we seek vainly in speculative metaphysics will "show itself," although it cannot be "said." "The logical form of reality" cannot be "said," it is "inexpressible"; but it "shows itself."

This distinction between what is "said" by a proposition, and what is "shown," which is based on Wittgenstein's theory of propositions as pictures of reality, is of very great importance in his philosophy, as will appear more clearly in the sequel. And it is treated by him in a highly mystical fashion. Matter-of-fact and scientific as his philosophical outlook appears to be, it ends up with the claim to some mystical insight into the Real.

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 4.12.

What can be "said" are only statements of fact, scientific statements. But: "We feel that even if all possible scientific questions be answered, the problems of life have still not been touched at all. Of course there is then no question left, and just this is the answer. The solution of the problem of life is seen in the vanishing of this problem. (Is not this the reason why men to whom after long doubting the sense of life became clear, could not then say wherein this sense consisted?) There is indeed the inexpressible. This *shows* itself; it is the mystical."<sup>1</sup>

I have now to examine Wittgenstein's method of determining what can and what cannot be said, and of drawing a limit to the expression of thoughts; and to examine also what it is that is shown thereby.

### 3. THE PRINCIPLE OF VERIFICATION

In Wittgenstein's *Tractatus* the principle or criterion determining what can and what cannot be "said" is developed in two stages. First of all, a proposition to be significant must conform to the laws of logic. And this involves, secondly, that it must be verifiable. A proposition is a picture of the facts, and a picture implies some basis for comparison between the picture and that which it pictures. Therefore some method must be conceivable for comparing the picture with the facts.

The logical side is developed at the beginning of the *Tractatus*.

"In logic," said Wittgenstein, "nothing is accidental. If a thing *can* occur in an atomic fact, the possibility of that atomic fact must already be prejudged in the thing. Just as we cannot think of spatial objects at all apart from space, or temporal objects apart from time, so we cannot think of *any* object apart from the possibility of its connection with other things. . . . A spatial object must lie in infinite space. A speck in a visual field need not be red, but it must have a colour; it has, so to speak, a colour-space around it. A tone must have a pitch, the object of the sense of touch a hardness."<sup>2</sup>

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 6.54.

<sup>2</sup> *Ibid.*, 2.01.

Thus certain terms *can* be combined, because their logical nature, or logical form, permits of the possibility of their combination; but on the other hand, certain terms *cannot* be combined. And of those that can be combined, while two particular terms may not be combined, they must exist in some combination.

The logical conception involved is a very simple one. For instance, I can significantly say, "This speck is red," and it must have a colour—if not red, then blue or green or yellow, etc. But I cannot significantly say, "This speck is loud," because specks cannot by their logical nature have sounds. Similarly, I can say, "This noise is loud," but not, "This noise is red." "This speck is loud" and "This noise is red," are not false propositions; they are not propositions at all, but merely insignificant combinations of words—nonsense.

Thus in the first place, the logical nature of the terms we employ is such that certain combinations of them are logically possible, while others are not. Language becomes insignificant when it starts combining terms in a way that contradicts their logical nature.

The logical nature of the terms is here of course *shown* by the laws of logic, or logical rules, which express how the terms may and may not be significantly combined. These laws of logic are *syntactical rules* for the significant use of language. But such rules are not arbitrary, because they *show* the logical form of the world.

Thus Wittgenstein would say that "a speck" exists in "a colour space." This means that a speck-word may be significantly combined with a colour-word, but not, for example, with a sound-word. This syntactical rule shows the logical nature of the speck.

Summing up, Wittgenstein stated: "What is thinkable is also possible. We cannot think anything illogical. . . . It used to be said that God could create everything, except what was contrary to the laws of logic. The truth is, we could not *say* of an 'unlogical' world how it would look. To present in language anything which 'contradicts logic' is as impossible as in geometry to present by its co-ordinates a figure which contradicts the laws of space, or to give the co-ordinates of a point which does not exist. We could present spatially an

atomic fact which contradicted the laws of physics, but not one which contradicted the laws of geometry.”<sup>1</sup>

The sense of the example here given will be understood by regarding geometry as “the logic of space,” or as “the syntax of spatial language.” To speak of a spatial object which contradicted the laws of geometry would then be, not to say something false, but to say something insignificant.

Here, then, is what I have called the first stage of the principle determining what can and what cannot be said. To be significant, a proposition must conform to the laws of logic. The second stage, which introduces the notion of verification, has most far-reaching consequences. Wittgenstein derived his views about “verification” from the Viennese philosopher Moritz Schlick, who first propounded the “principle” that “the meaning of a proposition is its method of verification.”

After the laws of logic, Wittgenstein came to deal with what is necessary in order to *understand* a proposition. Naturally, whatever conforms to the laws of logic can be understood, and whatever can be understood must conform to the laws of logic. Nevertheless, the introduction of the subjective or personal conception of understanding does introduce new features into the criterion of significance.

“To understand a proposition,” said Wittgenstein, “means to know what is the case, if it is true.”<sup>2</sup>

Elsewhere Wittgenstein had used the expression, “how it would look.” Evidently, then, to understand a proposition means that we must be able to imagine “how it would look,” “what it would be like,” if that proposition were true.

Wittgenstein said further: “In order to discover whether the picture (i.e., the proposition) is true or false, we must compare it with reality.”<sup>3</sup>

Piecing such remarks as these together, fairly definite conclusions begin to emerge.

First of all, to understand a proposition we must be able to imagine “how it would look if it were true.” If we cannot imagine this, then we cannot understand the proposition.

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 3.03.

<sup>2</sup> *Ibid.*, 4.024.

<sup>3</sup> *Ibid.*, 2.223.

But further, we cannot imagine "how it would look if it were true" unless we can imagine some method to "compare it with reality." If we know "how it would look," then, even if physical limitations prevent us from actually being able to "compare it with reality," we must at all events be able to *imagine some method* to carry out that comparison. In other words, *some method of verification*; for to verify a proposition means just to "compare it with reality."

If no method of verification is given, then the proposition cannot be understood, that is, it is insignificant. Thus to be significant, a proposition must be verifiable; it must be capable of some method of verification.

It will now, I think, be seen that the whole of the principle determining what can and what cannot be said is contained in this principle of verification. To give significance to a proposition, we must be able to show how it would be verified. If we cannot show any method to verify what we say, then we are in fact saying nothing. We are putting words together in an insignificant way. We are talking nonsense. This principle of verification contains within itself the principle that what we say must conform to the laws of logic. For very clearly what does not conform to the laws of logic, cannot be verified. As Wittgenstein truly remarked, "We could not say of an 'un-logical' world, how it would look."

Some examples may help to make clear the scope and application of the principle of verification:

"Parliament is now sitting in London." Method of verification: Travel up to the House of Commons and look in and see. Alternatively: Ring up and ask; listen to the news on the B.B.C.; read the parliamentary report in the newspaper.

"Water boils at 100° centigrade." Method of verification: put a thermometer in some water, heat the water, and note the temperature when it boils.

"The positions of the stars determine the course of human affairs." Method of verification: look up the astrological forecasts in back numbers of *The People*, *The News of the World*, *Old Moore's Almanac*, etc., and compare these forecasts with reports of what actually did take place.

"If unequal weights operate at equal distances, the larger

weighs down the smaller." Method of verification: carry out experiments with unequal weights.

On the other hand, some "metaphysical" examples may be taken, for which no method of verification can be given.

"The final reason of things must be in a necessary substance . . . and this substance we call God" (Leibniz). There is no method of verification for this statement, we can imagine no method for determining how it would look if this were so, rather than not so. Therefore this statement is meaningless.

"The things perceived by sense have no existence distinct from being perceived" (Berkeley). There is no method of verification for this statement. No method is given for determining how different things would "look" if they existed unperceived from what they would "look" if they had no existence apart from being perceived. Therefore this statement is meaningless.

"Our consciousness is only an image of the external world, and the latter exists independently" (Lenin). There is no method of verification for this statement, which is therefore meaningless, for the same reason as Berkeley's contrary statement was meaningless.

These latter examples (which can be multiplied almost indefinitely by anyone who likes to go through the writings of philosophers with this end in view) show that, quite in accord with the object "to draw a limit to thinking," Schlick's principle of verification which Wittgenstein borrowed can be used to demolish almost the whole of previous philosophy, whether idealism or materialism, as well as the whole of theology. The principle of verification is an extraordinarily indiscriminate weapon of criticism. It leaves nothing standing. It "draws a limit to thinking" with a vengeance, and represents practically the whole development of philosophy as nothing but a development of nonsense.

Meanwhile, those who feel drawn to this principle because it seems to uphold science and to demolish theology and idealism, should remember that it also demolishes materialism—and thereby leaves theology and idealism standing exactly where they were, by demolishing their only real opponent. I shall show in the sequel how the so-called "principle of



verification" leads straight to subjective idealism of the most extreme form, i.e., solipsism.<sup>1</sup>

#### 4. THE MEANING OF PROPOSITIONS AND THE METHOD OF VERIFICATION

It is now necessary to deal rather more fully with what is in general the method of verification of a proposition, and with some of the conclusions about the meaning of propositions which follow from the general concept of the method of verification.

What is involved in the method of verification?

Here it is necessary to refer once again to Wittgenstein's logical theory of the nature of propositions and their "pictorial relationship" with facts. The proposition to be verified is "a configuration of signs" to which "corresponds the configuration of objects in the state of affairs." And "in order to discover whether the picture is true or false [i.e., to verify it] we must compare it with reality." Hence the process of verification is a process involving some comparison of a proposition with the facts, or of a configuration of signs with a configuration of objects signified. The method of verification proper to any proposition is the method whereby such a comparison can be made.

But how can such a comparison be made? Such a comparison can be made when "the facts" or "the reality" of which the proposition is a picture, are *presented in experience*, in such a way that the correspondence or non-correspondence of the facts and the picture can be perceived. Unless the reality is presented in experience, no comparison can be made. I cannot compare a picture with something which I do not see. *I cannot verify a proposition except by reference to facts presented in my experience.*

To take an example. "The House of Commons is sitting today in London." I verify this proposition by going up to London and looking at them. With what do I compare the picture? I compare it with my experience, with what I see

<sup>1</sup> Solipsism is the doctrine that I can know of the existence of nothing besides my own immediate experience. Hence I cannot know that external material things exist, nor that any other people besides myself exist and have experiences.

and hear and (if I am unusually sceptical) touch in my visit to Parliament.

If, while I am carrying out this verification, I hear the voice of some metaphysician—a Communist M.P. perhaps, who is a philosophical materialist—saying, “Of course this Parliament has objective material existence quite independent of experience,” I should ignore his words as being altogether unverifiable and meaningless.

Because “experience” is necessarily something private and personal (in philosophical language, “subjective”), the conclusions that follow from this theory of verification would be best expressed in terms of “I” and “my,” and not in the usual “we” and “our.” For instance, it is clear already that when Wittgenstein said: “In order to discover whether the picture is true or false, *we* must compare it with *reality*,” what he means would be better expressed: “In order to discover whether the picture is true or false, *I* must compare it with *my experience*.”

Wittgenstein would, however, get out of this by saying that, since no mode of verification can be imagined whereby I should verify a proposition in any other way than in my own experience, and since I cannot imagine experience as anything other than “mine,” therefore the expressions “I” and “my experience” used in this context are unnecessary expressions, therefore meaningless, and therefore they might as well be omitted.

In general, the subjectivism and solipsism of Wittgenstein’s views is very hard to pin down in discussion, precisely because his theory insists that any philosophical statement of a subjectivist and solipsist position is as meaningless as any opposing statements of “realism” or materialism. But nevertheless, it “shows itself” even if it “cannot be said,” as Wittgenstein himself admits.

Nevertheless, for the sake of clarity, even if at the cost of being accused of using unnecessary signs and of trying to “say” what can only be “shown,” I shall continue here to use the words “I,” “my” and “mine.” The conclusion now reached, then, is that for me to be able to give any meaning to a proposition, I must be able to imagine some possible experience of mine which would verify it—that is, some

possible experience of mine such that, if I had that experience, I could compare the proposition with the experience, and say either this experience verifies this proposition or it falsifies it.

Therefore, to understand the *meaning* of a proposition, and to know what possible experience of mine would verify it, are one and the same thing.

*The meaning of a proposition is given by its method of verification in (my) experience.* What a proposition means is what would be the case if it were true. And what would be the case if it were true is whatever would be the content of my experience if it were true.

What this involves can be roughly elucidated by some more examples.

*Example:* "Parliament is sitting in London."

*Verification, i.e., meaning, of the proposition:* Seeing and hearing the Parliamentary debate, following on the chain of experiences which would verify the proposition, "I travel to London and enter the Houses of Parliament."

*Metaphysical misinterpretation of the meaning:* That the House of Commons has real material existence external to experience, and that real material organisms called Members of Parliament, endowed (some of them) with consciousness and reason, are sitting in it.

Here the "metaphysical" expressions "real material" and "external to experience" have no meaning. How can I compare the proposition with "real material" facts "external to experience"?

But the consequences of Wittgenstein's principle of verification are illustrated more strikingly by examples of propositions (a) referring to the past, and (b) referring to the experiences of other people.

*Example:* "Dinosaurs used to live on the earth in the Mesozoic period."

*Verification, i.e., meaning:* Seeing and touching certain objects, of an appearance which would verify the proposition "These are fossils"; verifying that the form of these objects is such that they belong to the class of fossils which paleontologists agree to call fossil remains of dinosaurs; verifying that the appearance of the strata in which these fossils are found to be embedded is such that they are strata of the sort

that geologists agree to call strata deposited in the Mesozoic period.

*Metaphysical misinterpretation:* The earth had real material existence long before I myself, or any paleontologists or geologists, ever existed or had experiences; and in the Mesozoic period of the earth's real material history it was inhabited by dinosaurs.

This is unverifiable metaphysical nonsense. For how can I compare the proposition with what took place millions of years ago "outside" my own or anyone else's experience?

*Example:* "Mr. Drury has toothache."<sup>1</sup>

*Verification, i.e., meaning:* Seeing his swollen face; hearing his groans and complaints; looking in his mouth and seeing his decayed tooth; etc.

*Metaphysical misinterpretation:* Another really existing person, Mr. Drury, has an experience of pain in his tooth, very similar to my own and other people's experiences of pain when we have decaying teeth.

This again is unverifiable metaphysical nonsense. For how can I compare the proposition with what takes place in someone else's experience, that is, with something absolutely inaccessible to me? (It follows, incidentally, that if I say, "I have toothache," and "Mr. Drury has toothache," the verification, and therefore the meaning, of the two propositions is very different. My own toothache I verify by an experience of pain. But if I and Mr. Drury both have toothache, it is metaphysical nonsense to suggest that two similar experiences of pain exist: I cannot verify the existence of the second—Mr. Drury's—experience of pain, nor can I compare the two experiences to establish their similarity.)

These examples can be multiplied indefinitely by anyone who finds it instructive or amusing to do so. Their importance is that they "show" what is involved in Wittgenstein's logical principle of verification.

Thus Wittgenstein's criterion for determining the conditions for the significance of propositions, leads to a position of out and out solipsism. I cannot speak, or what is the same

<sup>1</sup> This was a popular example once in Wittgenstein's discussions which I attended in Cambridge. If Mr. Drury should read these words, I send him my best wishes and hope he has got over the toothache.

thing, think significantly about anything outside the limits of my own experience, my own subjective world. The whole world shrinks into "the narrow compass" of my own immediate present experience, which exists mysteriously on its own, and in the void.

But according to Wittgenstein's principles about "saying" and "showing," this solipsism cannot be *said*; it is rather *shown* when we understand the principles of "the logic of our language." Hence his solipsism is expressed in a series of cryptic utterances:

"The world is my world."

"What solipsism means is quite correct, only it cannot be said."

"The world of the happy is quite another than that of the unhappy."

"In death the world does not change but ceases."<sup>1</sup>

Here indeed is "a limit" drawn "to thinking." Some might prefer to say that here "thinking" has reached the uttermost limit of absurdity.

## 5. THE INTERPRETATION OF SCIENCE

While Wittgenstein's principle of verification reduces nearly all philosophy to nonsense, in the sense that most "philosophical questions" are nonsense-questions, and the answers given to such questions by philosophers are nonsense, the same principle apparently treats science with the greatest respect. The study of "the logic of our language" rules out of order all "metaphysical propositions," and allows only statements of fact, and scientific statements.

Unlike the statements of metaphysicians, scientific statements are verifiable. And therefore while rejecting the "metaphysical" theories of philosophy as meaningless, we are to accept science. Science, in fact, provides the one road towards constructing verifiable, and therefore significant, theories about the world.

But while the principle of verification thus elevates science to the privileged position of comprising the sum-total of human knowledge, it does not leave science alone. It can be applied

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 5.62, 6.43-431.

with considerable rigour to the interpretation of science. Since the meaning of any proposition is given by its mode of verification, the meaning of any scientific generalisation is to be interpreted in terms of the set of experiences by which it is to be verified.

According to this, any scientific theory is to be regarded as simply a shorthand expression for saying that certain sorts of experiences may be expected under certain conditions.

For instance, the Copernican theory is a shorthand expression for saying what I may expect to observe about the position of the sun, moon and stars.

The Darwinian theory of evolution is a shorthand expression for saying what I may expect to observe about species of living organisms.

The modern atomic theory is a shorthand expression for saying what I may expect to observe when I taken certain readings off electrical apparatus.

And so on.

The Copernican theory does not say anything about the existence of the sun, moon and stars, apart from what is observed, and outside my own experience. Nor does the theory of evolution say anything about the existence and history of living organisms apart from what is observed, and outside my own experience. Nor does the atomic theory say anything about the constitution of matter, existing objectively and outside anyone's experience.

All such scientific theories are based on the experiences of past observations, and are elaborated from these according to very complicated linguistic rules. Should future experiences not correspond with what a scientific theory says is to be expected, then the theory has to be altered.

## 6. WHERE HAS WITTGENSTEIN LED US?

In now examining the results of Wittgenstein's philosophy (as distinct from the peculiar method and premises that led to those results), one cannot but be struck by the fact that there is nothing new in them. The upshot of the whole of Wittgenstein's theorising is but to lead back again to the old subjectivism of Berkeley.

The parallel between Wittgenstein and Berkeley is indeed a very close one. In the intervening two hundred years, this type of philosophy has advanced no further than to find new-fangled ways of saying the same thing.

Berkeley said that the world I perceive has no existence apart from my own perceptions. Wittgenstein says that propositions have no meaning apart from their verification in my own experience, and that "the world is my world."

Berkeley said that to talk of material substance existing external to experience was to use words without attaching any meaning to them. Wittgenstein says the same.

In order to try to provide some why and wherefore for human experience detached from all material existence, Berkeley called in the aid of God. Wittgenstein, at the end of his *Tractatus*, has resort to "the mystical" for the same purpose.

Finally, both philosophies have much the same kind of internal inconsistency.

This inconsistency showed itself in Berkeley when, after insisting on the impossibility of non-empirical ideas, he began to introduce "notions" of God, the Soul, Causality, and whatever else suited him, and distinguished "notions," with non-empirical content, from empirical "ideas."

In the case of Wittgenstein, it is equally easy to see that nearly all the philosophical "propositions" of his *Tractatus Logico-Philosophicus* sin against his own principle of verifiability, and should therefore be, on his own showing, meaningless. Like Berkeley with his "notions," Wittgenstein tries to get round this difficulty by maintaining that philosophical truths "show themselves," though they cannot be "said." But this does not alter the fact that he has said them.

"My propositions are elucidatory in this way," said Wittgenstein, at the end of his *Tractatus*. "He who understands me finally recognises them as senseless, when he has climbed out through them, on them, over them. He must so to speak throw away the ladder, after he has climbed up on it."<sup>1</sup>

This is only an admission of the complete internal inconsistency of the whole philosophy. (To look ahead for a moment, just as Hume tried to eliminate the inconsistency of Berkeley, so I shall presently show how Carnap has tried to

<sup>1</sup> Wittgenstein: Loc. cit., 6.54.

eliminate the inconsistency of Wittgenstein. Thus does history repeat itself; and moreover, "on the second occasion, as farce.")

Wittgenstein's teachings are, then, only a repetition of the teachings of Berkeley. There are new words, a great many principles about "the logic of our language"; but what we conclude from it all is exactly the same.

It is in relation to the interpretation of science that this philosophy finds its point and importance, now as in the past. Does science provide knowledge of things outside us, of the objective material world existing prior to and independent of all experience or other spiritual or mental activity? This philosophy answers, no. Science refers only to the subjective contents of experience. This philosophy continues to interpret or to analyse scientific truth philosophically, as dealing merely with sequences of perceptions, not with the constitution and laws of the objective world.

In relation to the "new method" of logical analysis, the outcome of Wittgenstein's "logical analysis of language" was definitely to tie down the interpretation or analysis of propositions within the limits of Berkeleyan subjective idealism. There was after all something very faintly materialist about the efforts of Moore or Wisdom to find "the analysis" of propositions which would reveal the ultimate objects to which those propositions referred. Evidently they thought there might be an objective material world, even though they tried to find out about it by metaphysical speculation instead of by scientific investigation. But by means of the principle of verification, Wittgenstein has rigidly insisted that every "analysis" shall be in terms of the contents of sense-experience. The meaning of a proposition is its mode of verification. Any proposition, whether it is a simple statement of fact or a proposition of science, means only something about experience. For no sense can be given to saying anything that refers to objects outside experience and external to consciousness.

Thus it is only a continuation of the old story of the disarming of science, and the denial of scientific knowledge of the objective material world.

But evidently science is hard to disarm, for the method of disarming it has become, with Wittgenstein, extremely tricky and subtle. This trickiness and subtlety it is very important



to understand. What Berkeley meant is very easy to understand—but what Wittgenstein meant, very difficult. And so people can very easily be deceived. For they accept such a dogma as the principle of verification, without understanding what it implies.

I referred above to the fact that, while the principle of verification very clearly implies that the meaning of any proposition is given in the mode of verification in my own experience, yet Wittgenstein would not allow that such an expression as “in my own experience” should be used. Why not? Because—what else can a proposition mean? There is no sense in saying that I verify a proposition outside my experience, or in someone else’s experience; and so there is no sense in saying that I verify it in *my* experience. The expression “in my own experience” is not necessary, and therefore it is meaningless. For “if a sign is not necessary, then it is meaningless.”

Thus while Wittgenstein’s logical principles very clearly do limit the meaning or interpretation of all propositions to their mode of verification in my experience, and so will not allow it to be significant to refer in any way to objective material things external to consciousness, but restrict our knowledge within “the narrow compass” of a mysterious subjective world; yet the same logical principles expressly forbid us to say that this is so. To say so is unnecessary, and therefore meaningless.

As Wittgenstein remarked: “He who understands me . . . must so to speak throw away the ladder after he has climbed up on it.” I think a more apt injunction would be, that he must cover up all traces of the crime after he has committed it. For objective truth has been foully murdered, and subjectivism installed in its place; but the murder and the substitution must be covered up. This is done by erasing all statements which point to them.

But this procedure, while it sometimes completely takes in people who have adopted a standpoint, so to speak, inside the circle of subjective idealism, cannot deceive those who stand outside that circle. And as evidence there is always Wittgenstein’s own statement at the end of the *Tractatus*: ‘What solipsism (and subjectivism) means is correct, only it

cannot be said." While his subjective idealism "cannot be said," it nevertheless does very clearly "show itself."

### 7. WHAT IS VERIFICATION?

Wittgenstein's philosophy insinuates subjective idealism in its most extreme solipsistic form and at the same time refuses to admit that this has been done. This trick is performed, as has been shown, by using Schlick's "principle of verification." The subjectivist conclusions are presented as though they amounted to no more than the very reasonable proposition that we should allow ourselves to assert only what can be verified in experience. And does not this proposition command assent? Is it not one which all scientifically-minded people must accept? Yes, but the trick which Wittgenstein's philosophy has performed consists precisely in the way it plays with the word "verification" and defines it in terms of a subjectivist logic and a solipsistic theory of knowledge.

Let us then set on one side the theory that a proposition is a picture of the facts, and that we verify it by comparing it with the facts which it pictures—and make a different approach, not from the basis of a logical theory, but in the light of the plain facts of everyday and scientific experience.

What is verification?

Without going into any detail about the theory of scientific method, it may be said, in the first place, that verification is a *practical activity*; that is, it involves some interaction between a person and his environment, in which he consciously alters his environment in some way. When any proposition is verified, and is put to the test of experience, the method of verification always involves that the person who is verifying the proposition performs some action, or series of actions, in which he arranges and alters things, in a manner to test the truth or falsity of the proposition he is interested in.

We verify our ideas about the world—i.e., propositions—not by contemplation, but by action. We verify whether our ideas about the world are right or wrong by changing the world in accordance with our ideas of it.

A proposition is not, then, verified through a sequence of events in "pure experience," but by a sequence of actions; and action, of course, leads to experience.

For instance—"There is coal in the coal-scuttle": how do I verify this? I verify it first of all by looking, but further by picking up whatever is in the scuttle, breaking some of it up, putting it on the fire, etc., in order to tell whether it really answers to the description of coal.

Verification is, then, in the first place a practical activity.

In the second place, the method of verification is usually, and always in the case of scientific verification, a *co-operative social activity*, involving the practical co-operation of a number of people.

Very often an individual person can verify his own ideas for himself. This is in general the case with ideas about very familiar objects—for instance: that there is coal in the coal-scuttle, that Mrs. Brown lives at No. 32, that it's raining today, and so on. But that is only because we each have at our command a great deal of socially accumulated experience and knowledge, which makes us immediately able to recognise familiar objects and their properties when we see them. In certain cases we might well desire the collaboration of others in verifying our ideas.

The social character of the method of verification is most evident in science. The verification of a proposition of science is always social, and must be—partly because the observations of one observer will never be accepted unless they are checked by the observations of others; and also because the verification of many propositions of science is such that one observer could not possibly verify them, and the method of verification must necessarily be a social method, carried out co-operatively by several observers.

For example, one consequence of Einstein's theory about gravitation is that a ray of light passing at a distance,  $r$ , from the centre of the sun will be deflected by an amount  $\frac{4m}{r}$ , where  $m$  is the gravitational mass of the sun. According to the previously accepted Newtonian theory, the deflection would be  $\frac{2m}{r}$ . What is the method of verification to tell which theory is right, Einstein's or Newton's?<sup>1</sup>

<sup>1</sup> See Eddington: *Space, Time and Gravitation*, chs. 6 and 7.

The method is to take photographs of a star so situated in relation to the earth and the sun that light coming from it passes very close to the sun on its way to the camera. Such photographs can only be taken during a solar eclipse, and the position of the point of light on the photograph will enable the amount of the deflection to be calculated.

This method of verification was undertaken by six astronomers during the solar eclipse in May, 1919. Three of them went with two telescopes to Brazil, and three went with another to the Gulf of Guinea; and their apparatus was prepared and tested before they set out by a Joint Committee of the Royal Society and the Royal Astronomical Society. The process of taking the photographs was a difficult and elaborate one, and each of the three observers at each observation point was busy with a different job during the making of the observations. When they got home, measurements were made of all the photographs which had been taken—and the result was that Einstein's prediction was verified.

This is an example of the social character of scientific method, and that the method of verification is a co-operative social activity. In this case it involved a Joint Committee plus six astronomers, two journeys half across the world and back, the setting up of telescopes, the taking of photographs, the development of the plates, the measurement of the position of points of light appearing on the plates, and so on.

Verification is, then, a practical activity, usually carried on by a number of people in co-operation; and in that case verification is not carried out by any one of them, but is the social result of their joint activity.

Taking into account, therefore, that verification is a practical activity, carried out co-operatively by socially organised people—what conclusion is presented? The conclusion is presented that verification is concerned with testing our knowledge of the objects and properties of the objective material world; objective and material in the sense that all people live in and know the same world, to which their particular experiences relate and in which their activities are carried on.

In any case, what is there in the process of verification to suggest the conclusions which Wittgenstein draws, namely, that the meaning of a proposition is its mode of

verification in experience, and that "the world is my world"?

For if verification is a practical activity, carried out co-operatively by several different people, how can verification be the work of one person in a solipsistic world of his own? It is the social work of many people, who live in a common world.

If verification is an activity in which we bring about changes in the world in order to test the correspondence of our ideas with the world, how can verification be a process confined to one person's subjective experience? Verification is not "a comparison" of a proposition with "facts" which turn up in my experience. It is a testing of the correspondence of the proposition with objective facts, a testing which can only be carried out in the practical activity of changing the world.

If I say Parliament is sitting in London, I mean it is sitting in London whether I go there to listen or not.

If I say dinosaurs used to walk the earth, I mean that they used to exist, whether I dig up their fossils or not.

If I say my friend has toothache, I mean he suffers pain, even though I cannot feel it myself.

If I say that light is deflected by gravitational attraction according to the formula  $\frac{4m}{r}$ , I mean that that is how it travels through space, not merely that certain dots on a photographic plate will occupy certain positions rather than others.

It is now not very hard to see how Wittgenstein has twisted and falsified the principle of verification.

He has been guilty of exactly the same muddle as all other subjective idealists. They all regard knowledge as built up by some hypothetical atomic individual, on the basis of his own sensations; whereas in fact knowledge is the social product of the co-operative social practice of many individuals, who act upon and are acted upon by material objects which are independent of their own existence and consciousness.

Wittgenstein seems to regard verification as a process carried on by some hypothetical atomic individual consciousness, which has its own "world," which "ceases" with its death; and in verification propositions are simply "compared" with "facts" which turn up in the private "world" of pure experience.

But this is a completely false account of the process of verification. It leaves out the two most essential features of verification—that it is practical and that it is social. When we reflect upon the practical and social character of the method of verification, then we see that to use verification as an argument for subjectivism and solipsism is indeed utterly absurd.

What is the importance of verification in the system of human thought?

Its importance is not that by showing how a proposition can be verified we show what it *means*. Its importance is that by showing how a proposition can be verified we show how it can be *known*. Verification is not a test or definition of meaning, but is a far more important test, namely, a test of knowledge. Verification is the test whereby we can tell that our thoughts are not mere idle speculations, but constitute, if only partially and approximately, knowledge of the objective world.

It is only an introspective and contemplative philosophy which concerns itself primarily with the criticism of the meaning of thoughts. For the advancement of human life, what is important is that the system of our ideas should be based on knowledge. And for the advancement of knowledge, what cannot be verified is of no use or value whatever. A proposition or a theory for which no method of verification is put forward is at best only a guess or speculation. The great value of science is that it is a method for formulating theories which can be verified, that is, for constructing a body of knowledge. For as Bacon said, "Knowledge of nature is the same thing as power over nature."

It may be thought perhaps that Wittgenstein's insistence on the principle of verification bears a close relationship to some of the fundamental ideas of materialism. Did not Bacon, the founder of modern materialism, start from the standpoint that whatever we can claim to know must be capable of verification?

But Wittgenstein's approach is a different one. Bacon started with the object of seeking for the indefinite expansion of our knowledge of the objective world; and pointed out that the criterion of such knowledge is that it is verifiable, as

distinct from the unverifiable dogmas of narrow scholastic philosophy. But Wittgenstein started with an entirely different object. His object was to "draw a limit to thinking." He did not take as his starting point the objective world and our expanding knowledge about it and power to change it; but he took as his starting point an introspective criticism of the process of thinking, with a view to "limiting" that process. Thus these philosophies are poles asunder.

It may perhaps be said that Wittgenstein's philosophy had at all events the outstanding merit of insisting on our giving a method of verification for all propositions. But where is the merit? This standpoint has been insisted upon and developed by materialist philosophy for the past three hundred years. Wittgenstein's alleged merit consists only in his having introduced confusions into the conception of the method of verification, and having systematised these confusions into a rigid system of "logical philosophy." But this is a merit only from the point of view of those who are interested in introducing confusions into our conception of the sciences; but such a point of view has its roots deep in the character of class society today, as in days gone by.

The aim of Wittgenstein's philosophy, "to draw a limit to thinking," can correspond only with the aims of those who are interested "to draw a limit" to thinking out the implications of scientific knowledge—as knowledge of the objective world, and therefore as power over nature, pointing to the need for a social organisation to enable that power to be used for the purposes of social progress.

#### 8. A PHILOSOPHY IN DISINTEGRATION

Towards the end of his life, Wittgenstein had second thoughts about many features of his philosophy as expounded in *Tractatus Logico-Philosophicus*. By 1945 he was writing: "I have been forced to recognise grave mistakes in what I wrote in that first book."<sup>1</sup> And after his death there was published, in 1953, a book entitled *Philosophical Investigations*, in which his second thoughts were collected together.

This book is a remarkable example of the complete disintegration of a philosophy. For while recognising that many

<sup>1</sup> Wittgenstein: *Philosophical Investigations*, Foreword.

of his former assertions were mistaken, Wittgenstein never succeeded in making clear why they were mistaken; and while giving up the definite and systematic ideas with which he had bound his former views together into a logically coherent system, he could find nothing definite with which to replace them. Hence the net result of his "philosophical investigations" was that his former philosophy fell to pieces and he had nothing to put in its place.

The main feature of Wittgenstein's second thoughts was the attempt to find a way out from the closed circle of solipsism inside which his previous "investigations" had landed him.

Solipsism is the logical conclusion of every subjective idealist philosophy. And yet to find himself expounding solipsism as the conclusion of philosophy is an absurd position for any philosopher to be in. For the mere fact that he writes down such a conclusion in books intended to be read by others, that he teaches students and enters into discussions about philosophy with his friends, shows conclusively that the philosopher himself simply does not believe his own statements. Subjective idealism, convincing and useful as it may seem to many bourgeois philosophers, has therefore the disadvantage that, if consistently followed through, it leads to a conclusion which no-one can accept and which can only discredit those who put it forward. And so it comes about that every subjective idealist who has followed his premises to their logical conclusion and reached the position of solipsism, always makes every endeavour to get away from that position.

Such, then, was the case with Wittgenstein. Having arrived at the position of solipsism, he got away again as fast as he was able, jettisoning in his retreat those hard and fast logical "principles" which had been responsible for his misfortune.

At the same time, Wittgenstein refused to face the fundamental question by answering which alone subjective idealism with its solipsistic conclusions can be disposed of—namely, the question of the objective existence of the external material world independent of its reflection in one's own subjective experience. So his further "investigations" were mere groping in the dark. The theoretical bonds which had formerly held his philosophy together—the "pictorial"



theory of propositions and the "principle of verification"—were loosened, and as a result his philosophy lost all its internal coherence and collapsed into no more than a collection of random remarks.

Wittgenstein himself was acutely aware of this collapse of his philosophy. "After several unsuccessful attempts to weld my results together into a whole, I realised that I should never succeed," he wrote. "The best that I could write would never be more than philosophical remarks. . . . I should have liked to produce a good book. This has not come about. . . ."<sup>1</sup>

Such observations stand in strange contrast to his confident statements of the year 1918 in the Preface to *Tractatus Logico-Philosophicus*: "The truth of the thoughts communicated here seems to me unassailable and definitive. I am therefore of the opinion that the problems have in essentials been finally solved." The contrast would have little interest if it merely showed that Wittgenstein personally had lost the dogmatic confidence of his youth. It reflects, however, the confusion and collapse of a whole school of philosophy, a collapse which took place during the advancing years of the general crisis of capitalism, "in the darkness of this time," as Wittgenstein himself expressed it.<sup>2</sup>

In his *Philosophical Investigations* Wittgenstein recognised that the world and experience are not so tidy as to divide neatly into atomic facts. Ceasing to regard language as a means of enunciating propositions of fixed logical form which pictured facts according to definite rules, he began to regard language instead as a means of communication between people which they develop to serve the various purposes of their life activity. This was certainly a step in the right direction. But it is a good index of the fantastic character of his earlier philosophising that the simple realisation of such an obvious fact knocked the bottom out of his former system. For now he had to give up his entire theory about atomic facts being pictured in propositions, and consequently his entire theory about the mode of verification determining the meaning of propositions.

From this one might have expected that Wittgenstein would

<sup>1</sup> Wittgenstein: *Philosophical Investigations*, Foreword.

<sup>2</sup> *Ibid.*

have gone on to realise that the people who communicate by means of language are living beings in the material world, that what they communicate relates to the world and their life in it, and that they produce their ideas on the basis of their interactions with external nature and with one another in society—in other words, that he would have made a fresh start in philosophy on the basis of some of the elementary principles of materialism.

Such, however, was not to be. For Wittgenstein still clung to his own earlier formula—which he had deduced from his theory of propositions picturing facts, but which he did not give up when he gave up that theory—that philosophical problems arise from the misuse of language and are to be solved by pointing out the proper use of language.

“Does the external material world exist?” “What is the relation of the different experiences of different people to the common objective world?” These are plain questions which admit of plain answers. “Yes, the material world does exist, and different people’s experiences reflect it in accordance with their different circumstances and activities.” Yet Wittgenstein’s philosophy continued to insist that such questions should not be asked, but that if they were nevertheless asked, then, instead of a plain answer being given, a discussion should be started about the proper uses of language. In this way Wittgenstein’s philosophy obstinately continued to serve the same end which it had served all along, and which such philosophies have served ever since Berkeley’s time, namely, of putting up a smokescreen to blot out the truth of materialism.

According to Wittgenstein’s original philosophy, language is used to picture facts, and philosophers fall into error by failing to appreciate that this single function must govern every significant use of language. According to his second thoughts, on the other hand, language has so many different functions that we become confused among them and lose our way, this being the cause of philosophical error.

“A philosophical problem has the form: I don’t know my way about,” Wittgenstein wrote.<sup>1</sup> In civilised society language is so many-sided that some people cannot keep track of it. “When we do philosophy we are like savages, primitive

<sup>1</sup> *Philosophical Investigations*, 123.

people, who hear the expressions of civilised men, put a false interpretation on them and then draw the queerest conclusions from it.”<sup>1</sup> So the aim of philosophy should be continually to clear up the uses of language, in order to put an end to problems arising from the misuse and misinterpretation of language. Those who engage in such misuse and misinterpretation fall into a kind of mental trap, in which they buzz about like flies in a fly-bottle. “What is your aim in philosophy? To show the fly the way out of the fly-bottle.”<sup>2</sup>

Yet if anyone feels himself a fly in a fly-bottle he should not look for release to any follower of Wittgenstein, who is more likely to join him inside than to help him out. For what, according to this philosophy, is the way out? It is to understand the principles of the proper use of language. And yet whereas formerly Wittgenstein did lay down such principles in a manner which, if mistaken, was at least clear and definite, now he has nothing definite to say at all.

“Think of the tools in a tool box,” wrote Wittgenstein. “There is a hammer, pliers, a saw, a screw-driver, a rule, a glue-pot, glue, nails and screws. The functions of words are as diverse as the functions of these objects. . . . How many kinds of sentence are there? There are *countless* kinds, countless different kinds of use of what we call ‘symbols,’ ‘words,’ ‘sentences.’ And this multiplicity is not something fixed, given once for all . . . instead of producing something common to all that we call language, I am saying that these phenomena have no one thing in common but that they are related to one another in many different ways.”<sup>3</sup>

If all that were true, then how could the discussion of the uses of language help to clear up any problems of philosophy? The only effect of such discussion could be to lead on to the invention of more and more different uses of language. And this, indeed, is precisely what fills the pages of Wittgenstein’s *Philosophical Investigations*.

Refusing to recognise that thought is the reflection of external reality, and that language in its manifold uses expresses and communicates thoughts whose form and content alike are

<sup>1</sup> *Philosophical Investigations*, 194.

<sup>2</sup> *Ibid.*, 309.

<sup>3</sup> *Ibid.*, 11, 23, 65.

determined by that which they reflect, Wittgenstein could find nothing to guide his "philosophical investigations," nothing to give them direction. His statement "I don't know my way about" certainly expressed exactly his own final position. And so, in the whole of his "investigations" nothing was investigated and not a single conclusion was reached about anything.

Such was the sad end of this philosophy which, on the basis of subjective idealist logic, set out finally to solve all the problems. Recoiling from its own logical conclusions but refusing to turn from subjective idealism to materialism, it simply fell to pieces.

## CHAPTER 10

### CARNAP AND THE VIENNA CIRCLE

#### 1. PHILOSOPHY AS THE LOGICAL SYNTAX OF THE LANGUAGE OF SCIENCE

WITTGENSTEIN had made the taking-off point of his philosophy the Russell-Whitehead theory of formal logic and Schlick's theory about "verification." Having traced the flight of his philosophy through to its final crash, it is time to return to the original starting point and follow the fortunes of a related trend which started off from the same place—the special and peculiar doctrines of Rudolf Carnap and the so-called Vienna Circle.

Carnap agreed with Wittgenstein that philosophical problems arose from misunderstandings of language, and that the task of philosophy was therefore to study "the logic of our language." But he hit on the idea that this task could best be carried out by rigidly excluding from philosophy all references to *meanings* and to the *relations of thoughts with things*. For such references, he thought, led straight to confusion and nonsense. Wittgenstein, by allowing himself to become entangled in discussions about the *meaning* of propositions, had fallen into the trap of solipsism. And we have already seen to what a pass he was afterwards reduced in trying to get out of this trap. Carnap, however, thought that solipsism could best be avoided by rigidly excluding from philosophical discussion any reference to the meaning of statements, and confining philosophy to the study, not of meaning, but of syntax.

Or rather, this is what Carnap began by thinking; for he, too, landed in an impasse and, like Wittgenstein, had to have second thoughts. I shall come to Carnap's second thoughts later, however. At present it is to the initial conclusions of the Vienna Circle that I want to direct attention.

Carnap spoke of "the problems of applied logic, of the logic of science, i.e., the logical analysis of the terms, statements, theories proper to the various departments of

science. . . ."<sup>1</sup> "In this fashion," he explained, "we use logical analysis to investigate statements of the various kinds proper to the various departments of science."<sup>2</sup>

Thus the basis of Carnap's position was that science was accepted as the vehicle of knowledge about the world, its constitution and laws; and the task of philosophy was to subject science to logical analysis. This was nothing new. But Carnap went on rigidly to insist:

"A philosophical, i.e., a logical, investigation must be *an analysis of language*."<sup>3</sup>

And again: "Philosophy is to be replaced by the logic of science—that is to say, by the logical analysis of the concepts and sentences of the sciences; for the logic of science is nothing else than *the logical syntax of the language of science*."<sup>4</sup>

Thus Carnap maintained that logical analysis, and the logical analysis of science in particular, was not concerned, as his predecessors thought, with analysing the *meaning* of terms and exhibiting the ultimate logical nature of the facts and laws established by science (e.g., that they are facts and laws concerning the order of events in experience); but was concerned with analysing *the language* of science, and exhibiting what he called "the logical syntax" of that language.

That was the standpoint, so Carnap thought, which would finally purge philosophy, that is, logical analysis, from all confusion, speculation and "metaphysics."

## 2. OBJECT-QUESTIONS AND LOGICAL-QUESTIONS:

### FORMAL THEORIES AND THE PRINCIPLE OF TOLERANCE

"The questions dealt with in any theoretical field," wrote Carnap, ". . . can be roughly divided into *object-questions* and *logical-questions*. . . . By object-questions are to be understood those which have to do with the objects of the domain under consideration, such as inquiries regarding their properties and relations. The logical questions, on the other hand, do not refer directly to the objects, but to sentences, terms, theories, and so on, which themselves refer to objects."<sup>5</sup>

<sup>1</sup> Carnap: *Unity of Science*.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

<sup>4</sup> Carnap: *Logical Syntax*, p. xiii.

<sup>5</sup> *Ibid.*, p. 277.

Thus science deals with objects. But philosophy, that is the logical analysis of science, does not deal with objects at all, but with "sentences, terms, theories, and so on"—in a word, with *language*.

Thus it appears that Russell and Wittgenstein should not have spoken of objects and facts, of the meaning of propositions, and of the comparison of propositions with reality. All that led them into "metaphysics." It is wrong to try to say anything of the relations of propositions and *facts*, of thought and *reality*. Scientific philosophy must confine its discourse to the relations of propositions with *propositions*, of thoughts with *thoughts*, and will deal exclusively with "the logic of language." (Thus incidentally, the materialist criticism of Wittgenstein's ideas about verification which I gave in the last chapter, would appear to be entirely the wrong criticism: the right criticism would be to criticise Wittgenstein for attempting to say anything at all about the comparison of propositions with facts, for nothing should be said upon such a subject.)

It is clear that this standpoint means that Carnap and his "circle" take a rather different view of logic from that expounded by Russell and Wittgenstein. And since the account given of pure formal logic must stand at the base of the "applied logic" or "logic of science," I must briefly direct attention to it before proceeding any further.

According to Carnap, "logic is syntax."<sup>1</sup> And he explains: "By the logical syntax of a language, we mean the formal theory of the linguistic forms of that language—the systematic statement of the formal rules which govern it, together with the development of the consequences which follow from these rules."<sup>2</sup>

He goes on to explain what he means by a "formal theory."

"A theory, a rule, a definition, or the like is to be called formal when no reference is made in it either to the meaning of the symbols (for example, the words) or to the sense of the expressions (e.g., the sentences), but simply and solely to the kinds and order of the symbols from which the expressions are constructed."<sup>3</sup>

<sup>1</sup> Carnap: *Logical Syntax*, p. 259.

<sup>2</sup> *Ibid.*, p. 1.

<sup>3</sup> *Ibid.*

Formal logic, or "logical syntax," is, then, concerned "simply and solely" with symbols, or with language, without regard to meaning.

This means that "logical syntax" is "the system which comprises the rules of formation and transformation" of a language.

Every language, considered formally (in the above sense of "formal," that is, without regard to its meaning), is based on "rules of formation and transformation."

The rules of formation show how symbols may be combined together to form sentences. The rules of transformation show how sentences may be derived from other sentences.

Thus if we know the rules of formation, then that corresponds to knowing which sentences are significant and which insignificant: and from a formal point of view, significant just means allowed in that language, and insignificant means not allowed. And if we know the rules of transformation, then that corresponds to knowing which sentences can be validly deduced or follow from which other sentences, and which do not follow from or are contradictory to which other sentences. From a formal point of view, that "p" follows from "q" means that if you say "q" you are allowed by the rules of the language to say "p," but not to say "not-p."

Hence whether a sentence is significant or insignificant, and whether a sentence follows from another or does not follow from it or is contradictory to it, does not depend at all on the *meaning* of the sentences, but can be seen solely from their syntactical form, given a knowledge of the rules of formation and transformation of the language.

This "corrects" the usually accepted opinions of logicians.

"The prevalent opinion," says Carnap, "is that syntax and logic, in spite of some points of contact between them, are fundamentally theories of a very different type. The syntax of a language is supposed to lay down rules according to which the linguistic structures (e.g., the sentences) are to be built up from the elements (such as words or parts of words). The chief task of logic, on the other hand, is supposed to be that of formulating rules according to which judgments may be inferred from other judgments; in other words, according to which conclusions may be drawn from premises." And he



continues: "Even those modern logicians who agree with us in our opinion that logic is concerned with sentences, are yet for the most part convinced that logic is equally concerned with the relations of meaning between sentences. They consider that, in contrast with the rules of syntax, the rules of logic are non-formal,"<sup>1</sup> that is, have reference to meanings.

But all this is wrong. The principles of logic can be, and should be, formulated without any reference at all to the meaning of words. They should be formulated simply as syntactical rules of formation and transformation.

But, it will be objected, how do we know which are the *right* rules of formation and transformation? Only by knowing the meaning of the sentences.

Carnap answers this objection. It arises, he explains, from the prejudice that the principles of logic must "constitute a faithful rendering of the 'true logic.'"<sup>2</sup> But the idea that there exists "the true logic"—the eternally valid principles of logic—which any system of logic must contrive to mirror (or to "show," in Wittgenstein's expression), is a mere "metaphysical" illusion.

"We have in every respect," Carnap writes, "complete liberty with regard to the forms of language; both the rules for construction of sentences and the rules of transformation (the latter are usually designated as 'postulates' and 'rules of inference') may be chosen quite arbitrarily. Up to now, in constructing a language, the procedure has usually been, first to assign a meaning to the fundamental mathematico-logical symbols, and then to consider what sentences and inferences are seen to be logically correct in accordance with this meaning. Since the assignment of the meaning is expressed in words and is, in consequence, inexact, no conclusion arrived at in this way can very well be otherwise than inexact and ambiguous. The connection will only become clear when approached from the opposite direction: let any postulates and any rules of inference be chosen arbitrarily; then this choice, whatever it may be, will determine what meaning is to be assigned to the fundamental logical symbols."<sup>3</sup>

<sup>1</sup> Carnap: *Logical Syntax*, p. 1.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*, p. xv.

This standpoint is called by Carnap "the principle of tolerance."<sup>1</sup>

"The first attempts to cast the ship of logic off from the terra firma of the classical forms were certainly bold ones," writes Carnap, referring to the various modern systems of symbolic logic. "But they were hampered by the striving after correctness," that is, by the prejudice that they must "constitute a faithful rendering of 'the true logic.'" "Now, however, that impediment has been overcome, and before us lies the boundless ocean of unlimited possibilities."<sup>2</sup>—"Unlimited possibilities" of "arbitrarily" inventing all sorts of "languages."

Explaining his own method of developing the principles of logical syntax, Carnap writes: "In consequence of the unsystematic and logically imperfect structure of the natural word-languages (such as German or Latin), the statement of their formal rules of formation and transformation would be so complicated that it would be hardly feasible in practice." And so: "Owing to the deficiencies of the word-languages, the logical syntax of a language of this kind will not be developed, but, instead we shall consider the syntax of two artificially constructed symbolic languages (that is to say, such languages as employ formal symbols instead of words)."<sup>3</sup> On this basis he is then able to formulate certain principles of "general syntax," applicable to any language whatsoever.

Such is the programme and standpoint of Carnap and his "circle" in the domain of logic.

Referring back to the logical theories of Russell and Wittgenstein, it will be seen that Carnap's standpoint makes short work of the system of metaphysics which they erected on the basis of logic.

Believing that logic must refer to the meaning of words and sentences, and that there must be certain logical forms of propositions which mirror the logical form of reality, Russell and Wittgenstein were led to consider the relations of propositions and facts, and to speak of "atomic facts," "simple objects," "elements," and the like.

<sup>1</sup> Carnap: *Logical Syntax*, pp. xv and 51.

<sup>2</sup> *Ibid.*, p. xv.

<sup>3</sup> *Ibid.*, pp. 2, 3.

Carnap will have none of this. For him, it is all "metaphysics" and quite inadmissible.

Logical analysis is not concerned with meanings, and with exhibiting the logical form of reality. It is concerned with the syntax of language. So the logical analysis of science likewise is not concerned with making clear the meaning and justification of science, but with making clear the syntactical principles according to which scientific statements are constructed, and the relations of such statements one to another.

The next step is the application of these logical principles to the problems of philosophy, that is, to "the problems of applied logic, the logic of science."

### 3. THE FORMAL AND MATERIAL MODES OF SPEECH

In dealing with the logical analysis of science, Carnap distinguishes two "modes of speech" in which the results of this analysis may be expressed. The first he calls "the material mode of speech," the second "the formal mode of speech."

"The first speaks of objects, states of affairs, of the sense, content and meaning of words; while the second refers only to linguistic forms."

Clearly, the material mode is "the more usual mode of speech." But the formal mode is nevertheless "the correct mode of speaking."<sup>1</sup>

In his book, *Logical Syntax*, Carnap gives some examples of the material and formal modes of speech in philosophy. In these examples the same philosophical proposition is expressed in both modes of speech:

#### *"Material Mode"*

A thing is a complex of sense-data.

#### *Formal Mode*

Every sentence in which a thing-designation occurs is equipollent to a class of sentences in which no thing-designations but sense-data designations occur.

<sup>1</sup> Carnap: *Unity of Science*.

*Material Mode*

A thing is a complex of atoms.

The world is the totality of facts, not of things.

A fact is a combination of objects (entities, things).

Time is infinite in both directions, forwards and backwards.

*Formal Mode*

Every sentence in which a thing - designation occurs is equipollent to a sentence in which space-time co-ordinates and certain descriptive functors (of physics) occur.

Science is a system of sentences, not of names.

A sentence is a series of symbols.

Every positive and negative real number expression can be used as a time co-ordinate."<sup>1</sup>

These examples are evidently intended to show how philosophical sentences in the material mode can be translated into the formal mode; and how moreover the material mode is apt to be misleading, whereas the formal mode is clear and "correct."

For the above sentences in the material mode sound as if they were asserting some property of the objective world—namely, important philosophical properties of things, the world, facts, and time. But when translated into the formal mode, it is clear that they are really only syntactical assertions, that is, not assertions about objects but about words.

Thus philosophical propositions are not really concerned, as philosophers usually believe, with making clear "the nature" or properties of things, the world, facts, time, etc., etc.; but they are syntactical propositions, about words, not about objects. And that this is so will be made clear by using "the correct formal mode of speech."

"Accordingly," says Carnap, "we distinguish three kinds of sentences: 1. Object-sentences. 2. Pseudo-object sentences. 3. Syntactical sentences."<sup>2</sup>

<sup>1</sup> Carnap: *Logical Syntax*, pp. 301-307.

<sup>2</sup> *Ibid.*, p. 286.

The sentences of science are object-sentences. To use the material mode, they are about the properties of objects: but as we should not use the material mode at all, we must not say so. On the other hand, philosophical sentences of the analysis of science are pseudo-object sentences, when they are expressed in the material mode. Thus they seem to be "about objects"; but if they are significant at all, then they are "equipollent" (i.e., equivalent) to syntactical sentences, that is, sentences in the formal mode.

"The use of the material mode," Carnap explains, "leads to questions whose discussion ends in contradiction and insoluble difficulties. The contradictions however disappear immediately we restrict ourselves to the correct formal mode of speech. The questions of the kinds of facts and objects referred to by the various languages are revealed as pseudo-questions."<sup>1</sup>

Carnap gives various examples of the difficulties and misleading controversies which arise from the unwise use of the material mode of speech. For instance, arising out of the first two assertions given in the list quoted above:

"Suppose that a positivist maintains the thesis, 'A thing is a complex of sense-data,' and a realist the thesis, 'A thing is a complex of atoms.' Then an endless dispute will arise over the pseudo-question of what a thing actually is. If we transfer to the formal mode of speech it is in this case possible to reconcile the two theses. . . . For the various possibilities of translating a thing-sentence into an equipollent syntactical sentence are obviously not incompatible with one another. The controversy between positivism and realism is an idle dispute about pseudo-theses, which owes its origin entirely to the use of the material mode of speech."<sup>2</sup>

"For complete safety," Carnap concludes, meaning safety from "idle disputes about pseudo-theses," "it would be better to avoid the use of the material mode entirely. . . . If this mode is still to be used, particular care must be taken that the statements expressed are such as might also be expressed in the formal mode. That is the criterion which distinguishes statements from pseudo-statements in philosophy."<sup>3</sup>

<sup>1</sup> Carnap: *Unity of Science*.

<sup>2</sup> Carnap: *Logical Syntax*, p. 301.

<sup>3</sup> Ibid.

## 4. THE LOGIC OF SCIENCE

Having established this distinction between the material and formal modes of speech, the next business is "the logic of science," in which care must be taken to speak in "the correct formal mode" throughout, or, if we do use the material mode, to make sure that what is said in the material mode can be translated into the formal mode.

Speaking of science in general, Carnap says: "Science is a system of statements based on direct experience and controlled by experimental verification. . . . Verification is based on protocol statements,"<sup>1</sup>

This generalisation must be interpreted carefully, because the references to "direct experience" and "experimental verification" savour strongly of the material mode of speech. In formal strictness and purity, Carnap does not analyse science as "based on experience," but investigates science as "a scientific language," or set of "scientific languages" (corresponding to the different sciences). He is concerned with science as "a system of statements"; and the important feature of science, he alleges, is that its statements are based on "protocol statements."

What then are protocol statements? Carnap proceeds to explain:

"The simplest statements in the protocol language refer to the given, and describe directly given experiences or phenomena, i.e., the simplest states of which knowledge can be had."<sup>2</sup>

This, however, is expressed in the material mode. Here is the same explanation in the formal mode:

"The simplest statements in the protocol language are protocol statements, i.e., statements needing no justification and serving as foundations for all the remaining statements of science."<sup>3</sup>

The programme of the logical analysis of science is, then, of a strictly formal syntactical nature. It aims to show how science, the whole system of scientific statements, is derived from protocol statements according to certain formal rules.

<sup>1</sup> Carnap: *Unity of Science*.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

Obviously these rules must in actual scientific practice be enormously complicated. However, the sort of thing meant can be made clear by an elementary example:

Suppose we are concerned with two pointer-readings,  $x$  and  $y$ , and our aim is to formulate a scientific generalisation showing how  $y$  depends on  $x$ . The readings will then be our protocol. Suppose, then, that we have the following protocol statements:

$x = 1$	$y = 2$
$x = 2$	$y = 4$
$x = 3$	$y = 6$
$x = 4$	$y = 8$

Then from this protocol we may derive the following generalisation, or scientific statement:

$$y = 2 (x).$$

This part of the procedure corresponds to that aspect of science described by Carnap in saying that its statements are "based on direct experience." That is, it shows how scientific statements are first derived from protocols. But the scientific statements are further "controlled by experimental verification." That is, having been derived from the protocol, they have further to be controlled, tested, revised, in relation to the protocol.

Let us therefore take some more readings. If the generalisation continues to fit the protocols, well and good, the generalisation stands. But suppose we now find that it no longer fits the protocols? Then in that case the generalisation has to be revised, and another made which does fit the protocols.

For instance, suppose that on taking the readings a second time we have the protocols:

$x = 1$	$y = 4$
$x = 2$	$y = 8$
$x = 3$	$y = 12$
$x = 4$	$y = 16$

Then our former generalisation must be scrapped. But a new simple generalisation, namely:  $y = 4 (x)$ , will not do, since the first protocol still stands, and this generalisation, which would fit the second, would not fit the first. The best course now will be to look for some third factor,  $z$ , whose variations

will enable us to arrive at a generalisation which will fit both the protocols. [So we now arrive at a third protocol:

$z=1$	$x=1$	$y=2$	$z=2$	$x=1$	$y=4$
$z=1$	$x=2$	$y=4$	$z=2$	$x=2$	$y=8$
$z=1$	$x=3$	$y=6$	$z=2$	$x=3$	$y=12$
$z=1$	$x=4$	$y=8$	$z=2$	$x=4$	$y=16$

Then we derive the revised and corrected generalisation:

$$y = 2 (zx).$$

The "logical analysis of science," then, shows how the whole system of scientific statements is founded on protocol statements. It further shows how a scientific statement is of the nature of a generalisation or rule which sums up a set of protocol statements, and forecasts further statements of the same set.

For instance, the generalisation,  $y = 2 (zx)$ , sums up the set of protocol statements on which it was based, and forecasts further statements of the same set—as for example, if we have:  $z = 5$  and  $x = 3$ , then we shall have  $y = 30$ .

Thus the whole logic of science is expressed in a purely formal syntactical way. We deal with nothing but statements and the formal relations of statements—not with the meaning of statements, nor with objective reality and the relation of statements to objective reality.

Thus science is based on given protocol statements; and science progresses and is tested and verified by the comparison of scientific statements—not with reality but—with further relevant protocol statements.

This result was summed up by a follower of Carnap, the late Otto von Neurath, as follows:—

"Sentences are to be compared with sentences, not with 'experiences,' not with a 'world,' nor with anything else. All these senseless duplications belong to a more or less refined metaphysics, and are therefore to be rejected. Every new sentence is confronted with the totality of sentences which are present and which have been brought into agreement. *Then a sentence is called correct if it can be brought into the system.* Whatever we cannot systematise is rejected as incorrect. Instead of rejecting the new sentences we can also, wherever we find it generally difficult to make a decision, alter the whole system



of sentences until the new sentence can be included. . . . In the present theory we always remain within the realm of speech-thinking."<sup>1</sup>

Carnap makes some interesting applications of this general "logical analysis of science" to particular sciences. Each science is distinguished by its own "language," and he speaks of the "various languages" which "can be distinguished in science."

Now although science, as distinct from philosophy or "the logical analysis of science," speaks in an "object-language" (that is, in the material mode, is about objects), nevertheless "the questions of the kinds of facts and objects referred to by the various sciences are revealed as pseudo-questions." Thus to give an account of any science, nothing should be said of "the kinds of facts and objects" which that science studies, how it studies them, or what it finds out about them. On the contrary, the science should be regarded simply as a system for producing statements in its own peculiar language.

Thus Carnap says of Economics: "Let us for example consider the language of economics, which can be characterised in somewhat the following fashion, i.e., by the fact that its sentences can be constructed from expressions 'supply and demand,' 'wage,' 'price,' etc., put together in such and such a way."<sup>2</sup>

Thus it appears that neither economics nor the logical analysis of economics is in the least concerned with "the kinds of facts" which underlie, say, the wages system. Economics is a "language" based on protocols in which words like "wages" occur.

## 5. PHYSICALISM

Having given this general "logical analysis of science," and having shown that the different sciences are distinguished by their "various languages," Carnap proceeds to make a sweeping generalisation which must be regarded as the crowning point in his particular "system."

The aim of this generalisation is to show that there can be one universal language of science, into which all statements

<sup>1</sup> Neurath: *Sociology in Physicalism*, quoted by Weinberg: *An Examination of Logical Positivism*, p. 277.

<sup>2</sup> Carnap: *The Unity of Science*.

in all the different languages of the different sciences can be translated. Thus instead of being a mere assembly of different languages, science is revealed as a unity—"the unity of science" is established by showing that there is a universal language of science into which all scientific statements can be translated.

This language is called "the physical language"; and this theory of "the unity of science" is called "physicalism."

To slip for one sentence into the material mode of speech, this "physicalist" theory of the unity of science is supposed to show that all science is about one world, and to indicate the fundamental physical nature of that world. But since to say this is vulgar "metaphysics," I shall return forthwith to "the correct formal mode of speech."

The theory of physicalism is capable of very simple expression. There is a language, called the physical language, into which all scientific statements can be translated; in other words, there is a statement in the physical language equipollent to any scientific statement.

Carnap proceeds to define the physical language in both the formal and material modes of speech:—

"The physical language is characterised by the fact that statements of the simplest form:—

*Formal Mode*

attach to a specific set of co-ordinates (three space and one time co-ordinate) a definite value or range of values of physical state.

*Material Mode*

express a quantitatively determined property of a definite position at a definite time."

And he thus sums up the theory of physicalism:

"Our investigations of the various departments of science therefore lead to the conclusion:—

*Formal Mode*

that every scientific statement can be translated into physical language.

*Material Mode*

that every fact contained in the subject matter of science can be described in physical language."<sup>1</sup>

<sup>1</sup> Carnap: *The Unity of Science*.

Carnap also explains that not only scientific generalisations but the protocols on which those generalisations are based, and by which they are tested, can all be translated into physical language. Thus:—

<i>“ Formal Mode</i>	<i>Material Mode</i>
Statements in protocol language can be translated into physical language.	Given direct experiences are physical, i.e., spatio-temporal events.” <sup>1</sup>

“ The physical language,” Carnap concludes, “ is a universal language, and, since no other is known, the language of all science. . . .

“ It is convenient of course for each department of science to have a special terminology adapted to its distinct subject matter. All our thesis asserts is that immediately these terminologies are arranged in the form of a system of definitions, they must ultimately refer back to physical determinations. . . . If we have a single language for the whole of science, the cleavage between different departments disappears. Hence the thesis of physicalism leads to the thesis of the unity of science.”<sup>2</sup>

## 6. MATERIALISM—METHODICAL AND PURIFIED

Lastly, on the basis of this “ thesis,” it turns out that Carnap is a materialist—a “ methodical ” materialist.

“ Our view that protocols constitute the basis of the entire scientific edifice might be termed Methodical Positivism,” Carnap writes. “ Similarly the thesis that the physical language is the universal language might be denoted as Methodical Materialism. . . . Our approach has often been termed positivist; it might equally well be termed materialist. No objection can be made to such a title, provided that the distinction between the older form of Materialism, and Methodical Materialism—the same theory in a purified form—is not neglected. Nevertheless for the sake of clarity we would prefer the name Physicalism. For our theory is that the physical language is the universal language and can therefore serve as the basic language of science.”<sup>3</sup>

<sup>1</sup> Carnap: *The Unity of Science*.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

Thus it would appear that subjective idealism, logical analysis, logical positivism, on the one hand, and materialism on the other hand, which throughout the years, and in the pages of this book in particular, have been at loggerheads, are at last reconciled by the physicalist theory of Carnap.

Hegel once likened "The Absolute," in which all different or conflicting things were supposed to be reconciled and to become identical, to "the night in which all cows are black."<sup>1</sup> Maybe the theory of physicalism is the same.

But it must be insisted that the "Methodical Materialism" of Carnap is a theory which moves in the realm of "logical syntax" or "speech-thinking" exclusively. It is a theory about the syntax of the language of science, and forbids us to think about the "kinds of facts and objects" referred to by any science.

Thus Carnap states: "All statements belonging to metaphysics, regulative ethics, and metaphysical epistemology . . . are in fact unverifiable and therefore unscientific. We are accustomed to describe such statements as nonsense. . . . We make no assertions as to whether the given is real and the physical world appearance, or vice versa; for logical analysis shows that such assertions belong to the class of unverifiable pseudo-statements."<sup>2</sup>

Such is in general outline the original or initial philosophy of the Vienna Circle.

<sup>1</sup> Hegel: *The Phenomenology of Mind*, Preface.

<sup>2</sup> Carnap: *The Unity of Science*.

## CHAPTER II

### A PROGRAMME FOR THE IMPOVERISHMENT OF THOUGHT

#### I. THE "ANALYSIS" OF SCIENCE

THE logical (or "methodical") positivists claimed that their "logical analysis of science" was entirely free from the dubious subjectivism and solipsism which characterised the theories of Mach, Russell or Wittgenstein. These "methodical materialists" claimed indeed that their analysis was entirely free from "metaphysics" of any sort, whether the "metaphysics" of the Berkeley-Hume tradition or that of the Bacon-Hobbes tradition.

Perhaps it was. But it was only free from such influences because it refused to say anything about the *content* of science or the *meaning* of science, and its relations to human life and the real world in which that life is led; because it dealt only with *words* and not with the meaning and justification of those words; and because in fact it did not regard science as *knowledge* at all, not even as knowledge relating to "my own experience."

A whole chain of philosophers, from Berkeley to Wittgenstein, have "interpreted" or "analysed" science, in order to make out that its subject matter is restricted to the order and arrangement of the "impressions," "elements" or "sense-data" found in sense-experience. And by means of such an "interpretation" or "analysis" they have obscured and covered up the *objective reference* of science, as scientific *knowledge* of the objective material world.

Carnap's "analysis" of science, although he studiously tried to avoid subjectivist conclusions, and called himself a materialist, was in effect exactly the same. For this analysis *also* obscures and covers up the objective reference of science, as scientific knowledge of the objective material world. It does this by refusing to allow anything to be said of the content or meaning of science, and virtually saying that science has no

reference at all, either to the objective world, or to the world of experience, or to anything else.

It has always been an essential argument of the pure empiricists, from Berkeley to Wittgenstein, that any talk of the objective material world, or of matter, is senseless "meta-physics." Carnap repeated this argument. Only he added that the same applies to Berkeley's and Wittgenstein's talk of experience. For: "We make no assertions as to whether the given (i.e., given experience) is real and the physical world appearance, or vice versa; for logical analysis shows that such assertions belong to the class of unverifiable pseudo-statements."

In other words, "we make no assertions" as to what science is about, and "we" will not allow anyone else to make such assertions, for they have no meaning. Science is to be regarded as a set of statements, founded on certain given primitive protocol statements, and tested and verified also by reference to such protocol statements; and science does not compare its statements "with experience, nor with a world, nor with anything else."

Very clearly, therefore, this is to confound and cover up the objective reference of science, as effectively as it was confounded by the most dogmatic subjectivism.

Those who, after long puzzling about the meaning of science and the extent or limitation of possible scientific knowledge, at length embrace the principles of "logical positivism" and "the logical analysis of science," are in the same happy position as the crew described by Lewis Carroll in *The Hunting of the Snark*:

"Other maps are such shapes, with their islands and capes,  
But we have our brave Captain to thank,  
(So the crew would protest) that he's bought us the best—  
A perfect and absolute blank!"

It is important not to be misled by Carnap's distinction between "object sentences" and "syntactical sentences." The "logical analysis of science" consists of syntactical sentences, but science itself does not consist of syntactical sentences but of object sentences. Expressed in the material mode, it is about objects.

Very well then, it will be said, science is about objects. So why complain that this analysis confounds the objective reference of science?

However, "science is about objects" is equivalent to saying, and would be more correctly expressed by saying, that "science consists of object sentences"; that is, that it consists of sentences in which terms like "supply and demand," "wages," "vitamins," "atoms," "electrons," etc., etc., occur. No one will dispute this obvious truth—it is only a statement about the language of science, and is quite trivial. But when it is asked, Do the terms employed by science stand for anything in the objective world?—then Carnap replies that we must not ask such "psuedo-questions."

Hence, while it may be agreed that science is expressed in an object language, this statement does not advance us a step further towards understanding the objective reference of science.

For when we speak of the objective reference of science, we are not thinking so much of the syntax of the language of science, as of the relations between scientific thought and material reality. Carnap says, however, that we must not think of the relations between statements and their objects, or of thought and reality, but only of the relations between statements and other statements, and of thoughts with thoughts.

Hence his assertion that scientific statements are "object sentences" does not remove the confusion introduced into the question of the objective reference of science, but only makes that confusion a little more confounded.

Carnap here shows the same trickiness with regard to the formulation of his conclusions as I remarked in the case of Wittgenstein. What his conclusions plainly mean—namely, that we do not have knowledge of the objective material world—is not allowed to be said. Carnap says, of course, that he does not deny the objectivity of our knowledge—he merely makes no assertions about it, one way or the other. But if you do not deny the objectivity of our knowledge, why go to such elaborate lengths to try to prevent it from being asserted? What is the purpose of this? What is its meaning? Simply to obscure and to cover up the objectivity of our knowledge.

Thus Carnap's "logical analysis," however novel some of its features may be, was essentially a continuation of the Berkeley-Wittgenstein tradition.

I shall now proceed to examine it in more detail.

## 2. PROTOCOL STATEMENTS

The conception of the protocol, of "protocol statements" and of the "protocol language," is clearly of key importance in Carnap's "logic of science." Protocols not only form the ultimate basis of the whole system of scientific statements, but scientific statements are ultimately tested and verified, accepted, rejected or revised, by comparing them with the protocols.

Hence it is of some importance to investigate exactly what these protocols are supposed to be.

The type of "analysis" undertaken by Russell and Wittgenstein purported to show how all scientific propositions, and indeed all propositions whatever, were derived from elementary propositions. Thus the ultimate data on which science was alleged to be founded were expressed in elementary propositions, and scientific generalisations were alleged in the last analysis to have elementary propositions as their instances.

Carnap would claim to have purged logical analysis of the "metaphysical" conception of the elementary proposition. Nevertheless, in his logical syntax of the language of science, protocol statements play exactly the same part as did the elementary propositions in the less "pure" and "formalised" analysis of Russell and Wittgenstein.

The conception of the protocol is only a new version of the conception of the elementary proposition. Thus protocol statements are the ultimate data—the "simplest" statements, which "need no justification"; and scientific statements are tested by reference to protocol statements, in the way that generalisations were tested by reference to the elementary propositions which were their instances.

And now it turns out that there is exactly the same difficulty in actually locating the ultimate protocols as there was in locating the ultimate elementary propositions.

Thus having given the general definition of a protocol statement, Carnap goes on to ask, in his double-barrelled way:



*"Formal Mode*

Question: What kinds of words occur in protocol statements?

*Material Mode*

Question: What objects are the elements of given direct experience? "

And after this question there follows, in his *Unity of Science*, a longish discussion (which it would be tedious to quote, as I have quoted one such discussion already when dealing with an earlier stage of "analysis"), the upshot of which is, that various answers can be given to this question, but it is hard to determine which answer is the right one.

It does not seem to occur to Carnap that the existence of such difficulties suggests that the question which gave rise to them must be a "pseudo-question," and that the whole method of analysis which gave rise to such a "pseudo-question" must be a "pseudo-" method.

The difficulty is much the same if we begin to ask, not only what the protocols are like, but how we arrive at them. The protocols are the ultimate basis of science; but we must have some method whereby we may select and arrive at the statements which constitute this ultimate basis. Carnap, however, does not suggest such a method. He tells us, in the formal mode, that protocols are "statements needing no justification"; and in the material mode, that they "describe directly given experience or phenomena." But how we may arrive at such ultimate and elementary statements, and what they are like when we do arrive at them, he does not tell us.

Hence it is only too clear that "the logical analysis of science," while formally it is very precise, begins to fail the moment it is applied to any actual body of scientific knowledge. For it says at the outset that science is founded on protocols, and then fails to say how the protocols may be recognised.

Precision in form may, and in this case does, mask the greatest confusion and lack of precision in content.

The difficulty here indicated was tackled in what may appear a most bold and radical way by Carnap's follower, Neurath. But Neurath's philosophising only makes the inadequacy and confusing character of the "analysis" still more obvious.

It will be remembered that according to Carnap's logical

"Principle of Tolerance," the syntax of a language may be chosen quite arbitrarily. Neurath applies this "principle" to science. According to him, it is only "a more or less refined metaphysics" to suppose that protocols are "the simplest statements," "needing no justification," "describing directly given experience," and so on. Scientists may therefore quite arbitrarily select whatever sentences they like to serve as their protocols—and if they get into any difficulties, they may reject these protocols and use others instead.

So the question as to which sentences are protocols and which are not, is decided from time to time by agreement between scientists. How they make that decision is their own business, and has nothing to do with logic or philosophy. And the study of the principles according to which such decisions are made is simply a matter of "sociology"—namely, a new branch of sociology which studies the peculiar social behaviour of scientists.<sup>1</sup>

I cannot but regard this very "radical" treatment of science as the *reductio ad absurdum* of the method of "analysis" which gave rise to it. It just dodges the issue of the logical foundations of science. It presents the method of science as merely a method of arbitrarily juggling with statements. And the principles which determine which statements are to be accepted by science, and which rejected, it dismisses by means of the formula: "sociology."

Thus the conception of the ultimate protocol, like its parent the elementary proposition, gives rise to nothing but difficulties and absurdities.

Two further remarks may be made under this heading.

First, whatever the protocol may or may not be, the "analysis" of science as based on protocols is an analysis which denies that science constitutes objective knowledge; that is to say, a system of propositions which are verifiable, and whose verification shows that they correspond with objective reality.

For according to this analysis, scientific statements are based on protocols and are verified by comparing them with the protocol. Hence their truth does not consist in any sort of correspondence with the objective world, but in

<sup>1</sup> See Weinberg: *An Examination of Logical Positivism*, p. 276.

correspondence with the protocol. As for the protocol itself, it is just "given," or arbitrarily selected. Hence nowhere is there any test which shows correspondence with the objective world. The "truth" of science does not consist in correspondence with the objective world—that is "a more or less refined metaphysics"; it consists in a certain internal coherence amongst the statements made by scientists.

Neurath says that how and why scientists arrive at their results may be explained by sociology. But even that will not get him far—for sociology, after all, is itself only a science like the rest, based, presumably, on arbitrarily selected statements. Why a body of "scientific" philosophers should go to such lengths to cover up the fact that science constitutes objective knowledge, is very hard to explain on purely philosophical grounds. But I suspect that, although sociology will not go all the way in explaining why scientists reach the results they do—it will explain why they tackle one problem rather than another, but not the particular solution of the problem which they reach; yet it will go a long way further in explaining the conclusions reached by some philosophers. For there is evidently a very strong and well-grounded sociological urge to conceal the fact that science constitutes objective truth.

Secondly, what is the real basis for all this theorising about protocols? Its basis is the fact that science proceeds from practice and experiment to theory, and then checks and further develops its theory by reference to practice and experiment. Since the results of practice and experiment are known through observations, it may therefore be said that all scientific theories arise from observations and are checked through observations. Hence it is of very great importance in developing the body of scientific knowledge, that the observations should be accurately recorded; and the more "exact" the science, the more important does this recording of the observations become.

It is this fact that Carnap and the logical positivists are evidently trying to express in their theory about protocols. But they have not expressed it correctly.

If "protocols" are to be defined as "the records of observations," well and good. But in that case:

(1) It cannot be said that they absolutely "require no

justification"—for the records of observations do require justification, need to be very carefully checked and verified, and in actual practice not only require justification but receive the justification that they require.

(2) It cannot be said that they "describe directly given experience or phenomena," because what they describe are objective material facts. For instance, if a scientist records readings from a galvanometer, he is not recording his own subjective experience, but he is recording the objective effects of certain physical processes upon a certain physical object, namely, the galvanometer.

(3) Once it has been decided what observations are to be made, there is nothing in the least arbitrary about which records of observations are to be accepted or which rejected.

Where Carnap and his followers have gone astray, and have been led "into insoluble difficulties," is in their arbitrary and dogmatic insistence that the philosophy of science must not move out of the realm of logical syntax, or of "speech-thinking," and must not deal with the meaning of propositions or their relationship with facts. Thus observing that science is based on the records of observations, they try to give a syntactical or formal definition of the records of observations. There can be no such definition. What makes the record of an observation what it is, and gives it its place in the system of science, is the fact that it records an observation—which is a non-formal definition, referring to its meaning. There are no special words, or ways of putting words together, which can be shown to be equivalent to the recording of an observation. The self-imposed search for such a formal definition has led the logical positivists into a number of absurdities. Namely:

(1) They have postulated ultimately simple and non-justifiable statements, which lie at the logical basis of all other statements.

(2) In trying to find out how these statements can be recognised, they have committed what they themselves admit is the unforgivable sin in philosophy—asking questions to which there is no answer.

(3) In then giving up the attempt to answer this question, they have then fallen into an even greater absurdity, namely, supposing that the basic data for science are chosen quite

arbitrarily, and that the choice of one scientific theory rather than another is only a matter of "sociology."

And finally (4) having been guilty of these absurdities, they accuse those who hold that science constitutes knowledge of the objective material world of being "metaphysicians" who engage in "idle dispute about pseudo-theses."

### 3. THE PHYSICAL LANGUAGE

I now pass on to some considerations about Carnap's theory of "physicalism," which he arrived at on the basis of his "logic of science."

Carnap's "logic of science" lays down a-priori what the logical form of science (or the general "logical syntax" of "the language of science") must be. The theory of physicalism is derived from a-priori considerations.

The body of science, it is argued, consists in a number of different sciences, each with its own peculiar language and based on its own protocols—but somehow there must be a unity of science. This unity of science cannot be derived from examination of the actual way in which all the different branches of science deal with the same subject matter, namely, the objective material world, because we are forbidden to talk of the objective reference of science, other than simply by saying that science uses an "object-language." Consequently, the argument goes, if there is a unity of science, then this must mean that there is one universal language of science, into which all the statements of all the sciences can be translated.

Thus "the universal language of science" is produced as a means of helping the logical theory out of a difficulty. The necessity of such a language is based on its necessity in the logical theory of Carnap. It is not based at all on an examination of science and the subject matter of science. If we consider, not logical theories, but the actual sciences, as studies of various aspects of the real material world, then we can perceive no necessity whatever why all those different aspects of the objective material world should all be expressible in the same set of terms. The fact that Carnap's theory demands such a language indicates rather that there is something wrong with Carnap's theory, than that such a language necessarily exists.

Hence the very postulate of the universal language of science is an arbitrary postulate. Still more arbitrary is the characterisation of that language, namely, the assertion that the universal language is "the physical language."

Every statement of every science, it is asserted, "can be translated into physical language"; that is, into a language "characterised by the fact that statements of the simplest form attach to a specific set of co-ordinates (three space and one time co-ordinate) a definite value or range of values of physical state."

Where is the justification of this sweeping generalisation? It may be sought, but sought in vain. All that Carnap supplies in *The Unity of Science* are some very general assertions, with regard to each science, that its principles *can* be so translated into the language of physics. But in proceeding from generalities to the investigation of particular cases, very considerable difficulty is encountered in the application of the theory of physicalism.

Take, for instance, the science of economics. Carnap has defined "the economic language" as a language in which "expressions 'supply and demand,' 'wage,' 'price,' etc." occur. Presumably "statements of the simplest form" in "the economic language" would be exemplified in such a statement as: "Hodge (a farm worker) receives £6 (wages)." Can this statement be "translated" into physical language?

Now to me two things appear evident in this example.

(1) Whenever it is true that Hodge receives £6 wages for his week's work on the farm, then a certain physical event takes place, which, as Carnap says, could be expressed by a statement which "attaches to a specific set of co-ordinates . . . a definite value or range of values of physical state." For Hodge and the Treasury notes which he receives as remuneration for his toil are all physical objects.

(2) But nevertheless, if that physical statement were made, it would *not* be a translation of the statement that Hodge receives wages. For what is meant by being a *worker*, by *wages*, and by £6 considered as a sum of *money*, cannot possibly be expressed in physical terms. The worker and the money have physical existence, but the relations which constitute their being as wage-worker and as money are not physical relations,

and not Carnap nor anyone else can ever express them as physical relations.

Many other examples could be taken; but one example is sufficient to prove a negative. In general it may be confidently asserted that: (1) whatever may be stated, if it is true, then some physical statement is true; but (2) it is not the case that whatever may be stated may be equally well stated in physical terms. The fact that some physical statement can theoretically be found to correspond to every statement, does not imply in any way that the language of physics is a universal language in which everything may be stated.

There exists a "unity of science." But this unity consists in the fact that the different sciences all study different, though related, aspects of one material world; not that all the statements of all the sciences can be expressed in the same set of terms, namely, physical terms.

Hence the theory of physicalism is not only a theory put forward on purely arbitrary and a-priori grounds, but it is certainly false into the bargain. And the fact that Carnap's method of "analysis" has need of such a theory only shows that Carnap's rule, that we must not study the content of science but only its syntactical form, is a rule which makes any understanding of science impossible.

The theory of physicalism is "correctly" expressed in the formal mode, as it has been expressed above. But Carnap also expresses it in the material mode. Expressed in the material mode, physicalism makes assertions about the nature of facts, as follows: "Every fact contained in the subject matter of science can be described in physical language," that is, in statements which "express a quantitatively determined property of a definite position at a definite time." In other words, all facts consist in the existence of "a quantitatively determined property of a definite position at a definite time."

Here, as was the case with Russell and Wittgenstein and their "atomic facts," Carnap's analysis leads at last to an a-priori presentation of the ultimate nature of the world.

Carnap calls this "Methodical Materialism," which is "a purified form" of "the older materialism." But where the "purification" comes in, it is hard to see. The theory of

physicalism, expressed in its material mode, is merely a dogmatic statement of the very crudest form of "the older" mechanistic materialism, which "reduces" everything to physical motions and says that qualitative differences are illusory. The advance of science itself has abundantly shown that this old cramped mechanistic view of the nature of the material world is quite inadequate to explain the varied phenomena which we meet with in actual practice.

Nevertheless, there is a certain universality about physics. Considering the different forms of motion in the world, then every form of motion contains a physical motion.<sup>1</sup>

There are many forms of motion of matter. Under certain conditions, only physical motions take place. Under other conditions, the physical changes give rise to the organisation of chemical atoms and molecules, and chemical processes occur on the basis of physical processes. Under higher conditions of organisation, chemical processes give rise to organic processes, and organic processes to human thought and social life. At each stage of development of the motion of matter, relations and corresponding laws of motion arise, which are not physical relations or laws, qualities come into being which are not physical qualities—but they have a physical basis. Physical phenomena, in this sense, are basic and universal.

But Carnap's theory of physicalism misrepresents the real nature of the universality of physics, that is, of the universality and basic character of physical motion. So long, indeed, as we have to deal purely with "the language of science," and are not allowed to deal with the content of science, and the kind of facts science is expressing, the real nature of the universality of physics and of "the unity of science" cannot be grasped.

Could we write a complete history of the evolution of the world, then the successive development of higher forms of the motion of matter would be dealt with in that history. The first chapter would deal simply with physical motions. But it would be shown how those physical motions give rise to tendencies towards forming organisations of a more complex kind, and at a certain stage such tendencies are able to express themselves in the formation of molecules. Once this has come

<sup>1</sup> Cf. Engels: *Dialectics of Nature*, ch. 3.



about, then there appear in the world new processes, chemical processes, the processes of chemical change and combination. Then come those particular chemical combinations which give rise to the phenomena of life. The evolution of living organisation gives rise to such an organisation as the brain, leading to conscious and purposive modes of life, social life, social history, and so on. Could then this history be written entirely in physical terms? No, it could not. Such a physical history of the world would not be able to describe all the new relationships, qualities and laws of motion which were successively appearing in the world in the course of the total world development.

To suppose that the history of the world would be only physical history is in fact a purely "metaphysical" supposition. This supposition is the supposition that physical events are in some absolute sense "the ultimate reality," so that a complete physical account of the world would say what the world ultimately is. But the truth is, that to approximate to a complete picture of the world, it would be necessary to describe the events at all levels. For instance, to deal in any completeness with the life of a human being, it would be necessary to study him socially, economically, psychologically, physiologically, chemically, etc., as well as physically: and the complex of motions that constitutes his life could not be "reduced" to physical motions.

#### 4. METHODICAL MATERIALISM AND UNMETHODICAL SUBJECTIVISM

On the basis of his theory of "physicalism," Carnap declared himself "a methodical materialist." I have shown how this "materialism" is in fact crude, dogmatic and untenable, and is indeed not materialism at all, for it is in truth only a theory about words. But it can also be shown how this "pseudo" materialism implies the very opposite of materialism, namely, the same subjective idealism and solipsism as characterised all Carnap's philosophical ancestors—Berkeley, Hume, Mach, Russell, Wittgenstein.

Consider, for example, Carnap's statement, already quoted: "Suppose that a positivist maintains the thesis, 'A thing is a complex of sense-data,' and a realist the thesis, 'A thing is a

complex of atoms.' . . . If we transfer to the formal mode of speech, it is in this case possible to reconcile the two theses."

Here Carnap proposes to "reconcile" materialism and subjective idealism—the view that things have objective material being independent of all consciousness, and the view that things are complexes of sense-data. He effects this "reconciliation" by saying that to describe things in terms of sense-data and to describe them in material terms are not contradictory descriptions, but simply two alternative uses of language.

But if it is true *both* that things are complexes of atoms *and* that things are complexes of sense-data, this means that atoms are constructions from sense-data; for if atoms have objective material existence independent of consciousness, then if things *are* complexes of atoms they certainly are *not* complexes of sense-data.

Thus the "reconciliation" of materialism and subjective idealism (or as Carnap says, of "realism" and "positivism"), means in fact the rejection of materialism and the acceptance of subjective idealism. For if things can equally well be described in terms of sense-data as in material terms, then subjective idealism is true and materialism false. The "transference to the formal mode of speech" may obscure this fact, but cannot escape it.

Thus, disguised as it may be, there is the same subjective idealism in Carnap as permeated the ideas of all his predecessors, from Berkeley to Wittgenstein.

Carnap insists as strongly as Berkeley or Mach or Wittgenstein, that the materialist "thesis" of the existence of the objective material world, and the correspondence of our perceptions and thoughts with this world, is nonsense and mere "metaphysics." He also insists that the opposite doctrine, as put forward by Berkeley or Mach, that what exists consists of our own sensations, ideas, experiences, is equally nonsense and "metaphysics." "We make no assertions as to whether the given is real and the physical world appearance, or vice versa; for . . . such assertions belong to the class of unverifiable pseudo-statements."

But this method of settling a philosophical controversy by refusing to recognise its existence will not work. Whoever

denies the existence of the material world—whether by saying straight out that it does not exist, or by saying that talk of it is nonsense—cannot escape the opposite position, the position of subjective idealism and ultimately of solipsism, which says that nothing exists but sensations, ideas, experiences.

Consider again some of Carnap's statements, already quoted, respecting protocols. "The simplest statements in the protocol language . . . describe directly given experience or phenomena. . . . Question: What objects are the elements of given direct experience? . . . Our investigations of the various departments of science lead to the conclusion that . . . given direct experiences are physical, i.e., spatio-temporal events."

Here the protocols are clearly supposed to deal with "the elements of direct experience." And since scientific knowledge can hardly deal with data beyond what is given in the protocols, scientific knowledge must deal with "given experience." Since "given experience" is "my experience," this means it would be hard to avoid solipsistic conclusions regarding knowledge, if it were not that "the correct formal mode of speech" comes to the rescue and prevents the obvious meaning and implication of the theory from being definitely stated. Since it is further stated that "given direct experiences are physical, i.e., spatio-temporal events," the form of subjective idealism suggested here is similar to that popularised by Mach, according to which physical events are constructions out of elements of immediate or direct experience.<sup>1</sup>

### 5. A METHOD TO KILL PHILOSOPHY

The logical positivism of the Vienna Circle, despite its "scientific" and even "materialist" pretensions, is only a variant of the old Berkeleyan subjective idealism, the essence of which was to "interpret" and "analyse" scientific knowledge in such a way as to deprive it of all materialistic content. The theories of the Vienna Circle represented a phase of this

<sup>1</sup> Professor A. J. Ayer, in a book entitled *Foundations of Empirical Knowledge* (which foundations he selects from the materials provided by a number of different philosophers, but particularly from Carnap), very definitely states the subjectivist conclusion of logical positivism on his last page: "The most we can do is to elaborate a technique for predicting the course of our sensory experience."

false and misleading philosophy, wherein science was deprived of any meaning whatever, and was represented as a mere system-building with words.

Logical positivism rejects the historical controversy between idealism and materialism in philosophy, asserting that they are just two alternative languages, and that the conflict between them is apparent only and depends on making pseudo-statements "in the material mode." In this, logical positivism represents the last refuge of idealism.

Logical positivism takes over the standpoint of Russell and Wittgenstein in logic, according to which the task of logic is to study propositional forms in abstraction from both the real world and real processes of thought reflecting the world. And it carries this standpoint a stage further—to its logical conclusion. Where Russell and Wittgenstein invented "atomic facts" to correspond with the elementary propositions of their logic, the form of the facts being reflected or "pictured" in the form of the propositions, logical positivism declares that no reference at all should be made to facts in logic. Hence it allows a completely arbitrary freedom of choice in the working out of logic, so that any number of different "logics" may be invented according to the different rules which may be arbitrarily chosen for constructing and combining the forms of propositions. In this way it denies any correspondence whatever between the order and connection of thoughts and the order and connection of things. We can arrange our thoughts how we like, and the connections in our thoughts will never reflect any real connections between things. Thus logical positivism in effect completely denies that there exists any order and connection in the real world which we may strive to discover and express in our thoughts about the world.

Throughout, the dogma is advanced that we must not think of the relations of thought and reality, about the objective meaning of our knowledge or about the nature of the world. Instead we must limit our thought to "speech-thinking," referring "only to linguistic forms." But no justification is found for this dogma, which leads only to theoretical helplessness.

The "method" of logical positivism is therefore only a method to kill philosophy, which has always regarded the

nature of the world and the relations between thought and reality as its main problems. In place of philosophy it puts word spinning, decked up as "logical analysis."

Logical positivism thus deprives philosophical and scientific thought of its whole content, and is a programme for the impoverishment of thought.

## CHAPTER 12

### POSITIVISM AS A PHILOSOPHICAL TENDENCY

#### I. AGAINST "PHILOSOPHICAL" SYSTEMS

THE 20th century form of subjective idealism exemplified in the writings of Russell, Wittgenstein, Carnap and their schools may be given the general name—Positivism. It claims to be a *scientific* philosophy, employing a new method, opposed to the old method of building up "systems" of philosophy. In this chapter I shall recapitulate some of the main points about its development, and draw some general conclusions about it.

One result of the impact of the natural sciences upon philosophical thought has been that as the sciences have branched off from the stream of philosophical systems and developed their own special methods of investigation, so the activity of constructing a purely philosophical "system of the world," standing above the sciences and relying upon speculative and a-priori methods of argument, has become increasingly revealed as futile and unnecessary.

The need for a change in the whole character of philosophy, arising from the development of the natural sciences, was stated long ago and very explicitly by Engels.

The advance of scientific knowledge, he wrote, led to "a comprehensive view of the interconnection of nature by means of the facts provided by empirical natural science itself." This "finally disposed of" all need for philosophical system-building, and "every attempt at resurrecting it would be not only superfluous but a step backwards."<sup>1</sup>

"Modern materialism," he wrote in *Anti-Duhring*, ". . . no longer needs any philosophy standing above the sciences. As soon as each separate science is required to get clarity as to its position in the great totality of things and of our knowledge of things, a special science dealing with this totality is superfluous.

<sup>1</sup> Engels, *Ludwig Feuerbach*, ch. 4.

What still independently survives of all former philosophy is the science of thought and its laws—formal logic and dialectics. Everything else is merged in the positive science of nature and history.”<sup>1</sup>

A like conclusion as to the futility of the traditional types of system-building has also increasingly forced itself into recognition in bourgeois philosophy. While some of the idealist schools have continued to this day to invent system after system, they have as constantly been opposed and criticised by “scientific” empiricists, who have declared that empirical science is the only highway to knowledge.

This was made a leading principle, for example, by Comte, to whom we owe the term “positivism.” According to Comte, the “epoch” in which men tried to arrive at a comprehensive view of the world by means of metaphysical speculations was over; henceforth we must cultivate the methods of empirical science, which alone provide “positive knowledge.”

The positivistic empiricists, however, in their opposition to philosophical system-building, have regarded the view, expressed by Engels, that empirical science discovered the objective “interconnection of nature,” as itself a kind of hangover of past system-building.

Commenting on Engels’ statement that “what still independently survives of all former philosophy is the science of thought and its laws,” Lenin pointed out that this includes “what is now called the theory of knowledge, which must regard its subject matter historically, studying and generalising the origin and development of knowledge.”<sup>2</sup>

The new standpoint of dialectical materialism includes the materialist theory of knowledge, which studies knowledge as the developing social process of the discovery of the interconnections and laws of motion of the real material world.

But far from including in their philosophy a theory of knowledge which studies and generalises the origin and development of our knowledge of the objective world, the fundamental feature of the positivist schools is that they have taken as their basis a theory of knowledge according to which we can know only our own perceptions to exist.

<sup>1</sup> Engels, *Anti-Duhring*, Introduction.

<sup>2</sup> Lenin: *Karl Marx*.

Impressed by the fact that knowledge has its origin in experience and must be tested in experience, the positivists have forgotten that experience is itself the product of our practical interaction with external material objects, and have instead regarded it as in itself something ultimate.

Hence they have not regarded the "positive knowledge" which we gain by empirical methods as relating to the objective material world, and as affording a more and more comprehensive view of this world, but they have regarded it as relating simply to our own perceptions. It is perceptions, they say, which are the data of knowledge and the only objects of knowledge: to suppose that they are produced by the action of external material things and that they impart information about such things, is itself simply a case of speculation.

Empiricists of this type, then, have come forward and developed their view as "scientific" opponents and critics of all kinds of philosophical systems, and as upholders of empirical science as against speculative philosophy. But they have given an interpretation of science according to which it does not provide knowledge of the objective world, but consists of formulas and rules for correlating observations. And it is this narrow subjectivist standpoint that they have counterposed to the philosophical systems of the past.

Thus, while positivists have opposed philosophical systems, and maintained that it is empirical science that is the road to knowledge, they have interpreted scientific knowledge, not as the knowledge of the interconnections and laws of motion of the objective world, but as restricted to the correlation of empirical data, i.e. sense-data, sensations, perceptions.

Thus the central features of positivism as a philosophical tendency are: first, the doctrine that all knowledge must be based on experience, opposition to speculative "system-building"; second, the doctrine that knowledge, based on experience, can serve only to correlate observations or to predict the results of various operations, and cannot reflect objective reality existing independent of experience.

## 2. RUSSELL'S "LOGICAL" METHOD

It was Bertrand Russell who more than anyone else set the pace for the modern development of self-styled "logical"



positivism, by introducing what he termed the method of logical analysis. But in essence he did no more than supply a "logical technique" for reformulating the previous results of empirical philosophers.

He himself has said as much in the last chapter of his *History of Western Philosophy*, where he writes that: "Modern analytic empiricism . . . differs from that of Locke, Berkeley and Hume by its incorporation of mathematics and its development of a powerful logical technique."<sup>1</sup>

This statement seems quite correct. But when Russell adds: "It is thus able, in regard to certain problems, to achieve definite answers, which have the quality of science . . ." he ventures upon more dubious ground, especially so far as his own contributions are concerned.

According to Russell, philosophy should not attempt to compete with natural science in working out a theory of the universe, or theories about particular parts of it. Past philosophers had mistakenly supposed "that *a priori* reasoning could reveal otherwise undiscoverable secrets about the universe."<sup>2</sup> But on the contrary, knowledge was only to be acquired empirically, partly through ordinary perceptions, partly by the refined techniques of natural science. The task of philosophy was, then, to subject the propositions established through ordinary perception and by science to a "logical analysis." The object of this "logical analysis" was to reveal their *exact meaning*, just exactly *what they were about*.

But subjective idealism had already, two hundred years earlier, given up the attempt "by *a priori* reasoning" to "reveal otherwise undiscoverable secrets about the universe." Hume had already written of every such attempt—"Commit it then to the flames; for it can contain nothing but sophistry and illusion."<sup>3</sup> Following on the work of Locke and Berkeley, Hume thought he had established: (a) that all our knowledge, all our ideas, were founded on the occurrence of sense perceptions, which he called "impressions"; (b) that all our knowledge, all our ideas, could relate to nothing other than those sense-perceptions or impressions.

<sup>1</sup> Russell: *History of Western Philosophy*, p. 862.

<sup>2</sup> Russell: *Our Knowledge of the External World*, p. 4.

<sup>3</sup> Hume: *Inquiry Concerning the Human Understanding*, section 12.

Russell was right, therefore, to claim for his own analytic method nothing beyond its providing "a logical technique" for developing the standpoint of the empiricism of the past.

"It can be laid down quite generally," Russell wrote, "that, in so far as physics or common sense is verifiable, it must be capable of interpretation in terms of actual sense-data alone."<sup>1</sup> The method of logical analysis provided a technique for working out this interpretation. It provided a technique for saying that whatever our knowledge referred to, whether material objects or our own mental processes, it was always to be interpreted "in terms of actual sense-data alone." The logical analysis showed that whatever we might know, it was always something about sense-data.

Russell has now been practising the method of logical analysis for forty years. In *Our Knowledge of the External World*, published in 1914, he worked out an analysis of "the external world" in terms of sense-data, which differed hardly at all from the pure empiricist or positivist "analysis of sensations" produced by Ernst Mach (even without the help of a "powerful logical technique") in 1897.

Incidentally, it is a remarkable fact that one of the very few philosophers of note who are never mentioned in his recent *History of Western Philosophy* is Ernst Mach. Perhaps as so much of what Mach said was repeated by Russell, no such reference was necessary. Another remarkable fact is the slight progress which Russell has made during so long a period of the employment of so "powerful" a method.

In his work on *Human Knowledge, its Scope and Limits*, published in 1948 and representing, presumably, the fruits of a lifetime of logical analysis, Russell has got so far as to distinguish "individual and social knowledge."<sup>2</sup> But he lays it down that "individual percepts are the basis of all our knowledge, and no method exists by which we can begin with data which are public to many observers."<sup>3</sup> How to get from the individual's knowledge of his "private" sense-data to social knowledge of the "public" material world, remains the problem.

Although Russell said that the logical method could "achieve

<sup>1</sup> Russell: *Our Knowledge of the External World*, p. 81.

<sup>2</sup> Russell: *Human Knowledge*, ch. 1.

<sup>3</sup> *Ibid.*, p. 22.

definite answers in regard to certain problems," this "problem" is not one of them. Nor could it be, since it is insoluble. It arises, indeed, only from the tacit assumption of the false positivist view about knowledge. If knowledge could "begin" only with "individual percepts," there could be no knowledge of the "public" objective world.

But knowledge does not in fact have its "basis" in "individual percepts," but is always social, and has its basis in human social activity. Beginning with "individual percepts" you can, as Hume realised, never get beyond "individual percepts"—"We never really advance a step beyond ourselves, nor can we conceive any kind of existence but those perceptions which have appeared in that narrow compass."<sup>1</sup>

How does Russell attempt, by his logical analysis, to solve his insoluble problem?

In his earlier analysis he had accepted that we can know nothing to exist except sense-data, and so had attempted to "construct" the material world out of sense-data—to represent the world as a "logical construction" of sense-data. In 1948 he had another try.

He begins with the familiar distinction between the "mental" and the "physical," which he defines in a most "logical" if unfamiliar way, in terms of "inference." A mental event, he says, is "one with which someone is acquainted otherwise than by inference." And a physical event is one which "if known to occur, is inferred, and which is not known to be mental."<sup>2</sup>

Thus sense-data are "mental events," with which we are allegedly directly "acquainted." What, then, can be inferred about "physical events," with which no one is ever "acquainted"? Only, says Russell, something about their "structure." We are aware of a certain structure of spatial and temporal relations in the field of our private sense-data, and from this we "infer" the existence of events of similar space-time structure constituting the public physical world.

"Physical events are known only as regards their space-time

<sup>1</sup> Hume: *Treatise of Human Nature*, Book 1, part II, section 6.

<sup>2</sup> Russell: *Human Knowledge*, p. 265.

structure. The qualities that compose such events are unknown—so completely unknown that we cannot say either that they are, or that they are not, different from the qualities that we know as belonging to mental events.”<sup>1</sup>

As for the justification of this “inference” to the “structure” of a realm of “physical” events whose qualities are unknown, Russell can give no rational account of it at all. Our knowledge of the physical world is said to be based on “postulates” (namely, of the existence of the physical world and of certain features of its structure) which themselves “cannot be based on experience.”<sup>2</sup> They are based on a generalisation of what Russell calls “animal expectation.” Their justification is not logical but biological. In the course of “the adaptation to the environment upon which biological survival depends” we have formed, he says, certain “inferential habits.”<sup>3</sup>

That is all he can say. But, of course, to talk in this way about “the environment” and “biological survival” is itself, according to this way of philosophising, only an exemplification of the same irrational “inferential habit” which it is intended to justify.

So far, then, is Russell, with his “powerful logical technique,” from having advanced a step beyond the empiricism of two hundred years ago, that his study of “the scope and limits of human knowledge” ends up with precisely the well-worn irrationalism of Hume. Hume said that there could be no reason whatever for postulating the existence of the external material world, but that we were nevertheless constrained to postulate it by an ineradicable “habit.” Russell adds a “biological” explanation of this “habit.”

So what is in fact the outcome of Russell’s latest “analysis”? It is merely to continue to represent the material world as a “logical construction” out of sense-data. Instead of trying to construct the material world out of sense-data as the “elements” of the world—a method which he borrowed from Mach—Russell now constructs it in terms of the alleged “space-time structure” observed among sense-data—and the objects or events which are “inferred” to have this “structure” are reduced to the status of the unknown.

<sup>1</sup> Russell: *Human Knowledge*, p. 247.

<sup>2</sup> *Ibid.*, p. 527.

<sup>3</sup> *Ibid.*, p. 526.

Russell has gone back another hundred years from Mach, and "infers" the existence of Kant's unknowable "things-in-themselves." Logical analysis now reveals the material world as something utterly unknown and unknowable—a veritable "mysterious universe." We are supposed to "infer"—by means of an "inference," of which no logical but only a biological account can be given—a "space-time structure" for this realm of things-in-themselves, and to construct it out of the spatial-temporal relations with which we are acquainted as holding between sense-data.

I conclude that Russell's "logical method" (which provides the jumping-off point for the various branches of "logical" empiricism with which I am concerned in this book) is, indeed, as he himself has said, nothing but a method for re-stating old theories.

But whereas Russell thinks his "logical method" has brought new power and clarity into the statement of these theories, I conclude that the case is rather the opposite. There has taken place, not a progress, but a degeneration of this type of philosophy—a piling up of confusion upon confusion, of obscurity upon obscurity. Such is the inevitable conclusion which emerges if one reads first Hume's *Inquiry Concerning Human Understanding* and then Russell's *Human Knowledge, its Scope and Limits*.

### 3. "LOGICAL" POSITIVISM

A different application of Russell's "method" gave birth to the view that the task of philosophy is *the analysis of language*—to what is known as "logical" positivism, or "logical" empiricism. This view arose out of the discussions which in the early twenties of the present century marked the foundation of the so-called Vienna Circle. And of key significance were the views of the Viennese philosopher, Moritz Schlick.

Schlick's standpoint may be understood as arising from the demand for a much more consistent and rigorous application than hitherto of the positivist principle of opposition to philosophical systems.

The system-building philosophers had all tried to say what were the ultimate components of the world, and in their systems they attempted theoretically to construct the world

out of these ultimate components. Thus the metaphysical materialists wanted to say that the ultimate components of the world were material particles, and that everything that happened consisted of the mechanical interactions of particles. Idealists, on the other hand, wanted to say that the ultimate components of the world were spirits, and that nothing was real except the activity of spirit. All such views about the nature of the ultimate components of the world, all such attempts to construct a system of the world, were described by Schlick as "metaphysical."

Positivists, then, had set out to do away with the construction of such systems. They had said that we can know nothing by methods of metaphysical speculation and system-building: knowledge was based upon experience, related to the sense-objects with which we were acquainted in experience, and was to be gained, not by metaphysical speculation, but by the methods of empirical science. But, having got so far, positivists had themselves become metaphysicians. Positivism had itself still to be emancipated from metaphysics. For they had then gone on to say that the ultimate components of the world were the *sense-data* with which we were acquainted in experience, and to construct their own "system of the world" as a *world of ordered sense-data*. Such, for example, was the philosophic system which emerged from such a work as Mach's *Analysis of Sensations*. Such was also the philosophical system contained in Russell's *Our Knowledge of the External World*, *Analysis of Matter* and *Analysis of Mind*.

Schlick and the Vienna Circle were undoubtedly quite right in thinking that positivism still contained a large element of "metaphysics." What they set out to do was to purify positivism of "metaphysics," to expunge from it the last traces of system-building.

Schlick insisted that the requirements of a strict empiricism must rule out any kind of "metaphysical" system of the world. Philosophy should not attempt a metaphysical "construction" of the world out of any kind of ultimate components. And he put forward a quite simple formulation of the requirements of empiricism, calculated to rule out "metaphysics."

Whatever was said must be capable of verification (or falsification) in experience, said Schlick. In other words, one

must always be able to say, with regard to any statement, what kind of experience would verify it or what kind of experience would falsify it: and one must be able to suggest a method whereby one could, theoretically at least, proceed to test, in experience, the truth or falsity of one's statements.

"Metaphysical" statements are, said Schlick, statements of a kind which cannot be verified or falsified in experience. With regard to any "metaphysical" statement one must ask—what difference would it make to my experience if this statement were true or false? If it turned out that it would make no difference either way, then the "metaphysical" character of the statement was thereby exposed.

For example, what difference would it make to my experience if the world were ultimately composed of bodies or of spirits? Schlick pointed out that for both metaphysical materialists and metaphysical idealists the experience which they conceived to be produced, in the one case by the interaction of bodies, in the other case by the interaction of spirits, was exactly the same. It was, in fact, a case of "a rose by any other name would smell as sweet." Whether a rose is "really" a body or a spirit, it smells just the same. Hence the truth or falsity of such metaphysical statements makes no difference whatever in experience. Hence there is no possible way of telling whether they are true or false. They are idle statements, a mere playing with words—meaningless.

Following up this formulation of the requirement of strict empiricism—that every statement must be capable of verification in experience, and that a sentence which is not capable of verification in experience is meaningless—it was Schlick who first formulated the principle that "the meaning of a statement is its method of verification." And from this principle he drew the most rigorous conclusions about the future tasks of philosophers, and the meaninglessness of past philosophy.

It followed, according to Schlick, that only statements of fact and scientific statements had meaning. For only such statements were verifiable—and their meaning was given by their mode of verification in experience. The statements usually made by philosophers, therefore—statements which were neither statements of matter of fact nor empirical generalisations of natural science—were all meaningless.

This conclusion about the meaninglessness of philosophy was summed up by Wittgenstein as follows:

"The right method of philosophy would be this. To say nothing except what can be said, i.e. the propositions of natural science, i.e. something that has nothing to do with philosophy: and then always, when someone else wished to say something metaphysical, to demonstrate to him that he had given no meaning to certain signs in his propositions. This method would be unsatisfying to the other—he would not have the feeling that we were teaching him philosophy—but it would be the only strictly correct method."<sup>1</sup>

Schlick himself expressed it in an even briefer and more oracular form. "No more books will be written about philosophy, but all books will be written in a philosophical manner."<sup>2</sup>

What he intended to convey was evidently that the task was not to construct philosophical systems, speculating about the ultimate constituents of the universe, but the task was to formulate scientific statements "clearly," i.e. in a way which clearly exhibited their mode of verification in experience.

The question which has now to be asked concerning Schlick's purification of positivism from metaphysics is whether he did in fact succeed in purifying it of metaphysics. And the answer is, that he did not.

The principle of verification was a reformulation of the positivist principle that philosophy interprets the propositions of natural science. For positivism, scientific knowledge is founded on the data of sense and its subject matter is the data of sense. The components of the known world, its ultimate components, are, therefore, sense-data. Schlick pointed out, quite rightly, that this was a "metaphysical" view—the formulation of a philosophical system. But all he did was to substitute a metaphysical concept of "experience" for the metaphysical concept of "sense-data."

Schlick's principle of verification—which simply said that the meaning of every statement was its mode of verification in experience—elevated the individual's "experience" into a metaphysical absolute. This "experience" became the

<sup>1</sup> Wittgenstein, *Tractatus Logico-Philosophicus*, 6.53.

<sup>2</sup> Schlick: *Communication to the 7th International Congress of Philosophy*, 1930.



ultimate reality, of which, as Hume said, "let us chase our imagination to the heavens or to the utmost limits of the universe, we never . . . can conceive any kind of existence but those perceptions which have appeared in that narrow compass."

Wittgenstein's *Tractatus Logico-Philosophicus* succeeded in underlining the metaphysical character of the view of "experience" as the ultimate reality, and also in expressing the fact that this view was not only metaphysical but "mystical."

"What solipsism means is quite correct," wrote Wittgenstein; and added: "only it cannot be said, but it shows itself. . . . Solipsism," he continued, "strictly carried out coincides with pure realism. The 'I' in solipsism shrinks to an extensionless point and there remains the reality co-ordinated with it."

He then found something essentially mystical in the contemplation of this limited, solipsistic "reality." "The contemplation of the world *sub specie æterni* is its contemplation as a limited whole. The feeling of the world as a limited whole is the mystical feeling."<sup>1</sup>

Schlick's absolute experience, invoked in the principle of verification, thus becomes an object of metaphysical contemplation "*sub specie æterni*," and the "clarification" of the propositions of natural science leads, not to rational understanding, but to "mystical feeling."

Schlick said that "no more books will be written about philosophy." But seldom can any master have made a statement which was more speedily falsified by his followers.

In Wittgenstein's *Tractatus Logico-Philosophicus* the metaphysical character of Schlick's anti-metaphysical views was already startlingly demonstrated. Wittgenstein had already revealed that Schlick's attempted reform of positivism was a system of subjective idealism. And with Wittgenstein this subjective idealism was already carried to its logical conclusion in solipsism.

But Schlick's followers in the Vienna Circle, and especially Rudolf Carnap, attempted to write their books in a different "philosophical manner." Schlick himself, and Wittgenstein,

<sup>1</sup> Wittgenstein: Loc. cit., 5.62, 5.64, 6.45.

were regarded in the Vienna Circle as representing "the right wing." The so-called "left wing," led by Carnap, tried to do better.

Theirs was a double endeavour.

First, they could not rest satisfied with Schlick's deduction from the principle of verification that there could be no philosophical propositions. Clearly, philosophers would continue to enunciate philosophical propositions; and if meaningless "metaphysics" was to be avoided, it was necessary to discover the nature of *significant* philosophical propositions.

In the second place, they wished to find a way of developing empiricist philosophy which would finally rid it of the subjectivism and solipsism which had haunted it for two hundred years and which no positivist philosopher had so far succeeded in exorcising.

Carnap did not find much difficulty in defining what field was left for philosophic inquiry by Schlick's principle of verification, and, therefore, in defining the subject matter of philosophical propositions.

The principle of verification had the effect of directing attention upon *language*, upon the "logic of language." The metaphysical statements of philosophers were criticised, not on the grounds that they stated anything dubious or false, but on the grounds that the philosophers had put words together in what critical scrutiny revealed to be senseless ways, so that their statements were unverifiable and therefore stated nothing. The criticism of metaphysics was therefore based on the critical analysis of language; and similarly, if philosophy helped to clarify the methods of empirical science and the meaning of scientific statement, this, too, was done on the basis of analysis of language.

The rightful field of philosophic inquiry was, then, the logical analysis of language. Philosophers had been wrong in speculating philosophically about the nature of the world: that only led to senseless metaphysics. Their rightful task was the analysis of the language in which empirical facts and generalisations about the world were stated. "A philosophical, i.e. a logical, investigation must be an analysis of language."

But once the subject matter of philosophy has thus been marked off—namely, logical analysis of language—then, argued

Carnap, we can immediately define the nature of philosophical propositions, as distinct from empirical scientific propositions. Schlick and Wittgenstein were mistaken in saying that philosophical propositions were senseless, and that only empirical scientific propositions had sense. Philosophical propositions about the metaphysical nature of the world were senseless; but philosophy should not deal with the metaphysical nature of the world but with the logical nature of language.

Carnap, therefore, introduced a distinction which he considered fundamental for philosophy—a distinction between two classes of statements. On the one hand were statements of fact and of natural science, which had to be verified in experience and whose meaning was given by their method of verification. On the other hand were statements of the analysis of language. The first, Carnap called “object statements,” the second “logical statements.” Philosophical statements were not object statements, but logical statements.

Having got so far, Carnap began further to delimit the nature of “logical” statements. A logical or philosophical statement can make no reference to “objects” whatever, but only to symbols—words. It is about language, and not about what language is about. Hence the logical analysis of language, which is now identified with philosophy, can make no reference to the relationship between symbols and the objects they symbolise—no reference, that is to say, to “meanings.” It deals exclusively with the relations of symbols with symbols in the logical structure, or syntax, of language. To refer to the relation of symbols and objects symbolised is to start using an “object language” in philosophy and is to lapse into metaphysics.

Philosophical statements, said Carnap, were to be regarded, therefore, as statements of logical syntax. The essence of logical syntax, according to him, was its “formal” character. “No reference is made to the meaning of the symbols or to the sense of the expressions, but simply and solely to the kinds and order of the symbols with which expressions are constructed.”<sup>1</sup>

By this double reduction of philosophy—first the reduction of its subject-matter to logical analysis of language, and then

<sup>1</sup> Carnap: *Logical Syntax*, p. 1.

the reduction of logical analysis to syntax, excluding any reference to meaning—Carnap thought that he had not only mapped out a clear field for “logical” positivist philosophy, but had finally rid that philosophy of all taint of metaphysics, and of subjective idealism and solipsism in particular.

Throughout its whole history, positivism has been trying to escape from the implications of subjective idealism. Positivists have continually interpreted knowledge in a subjective idealist way, and as continually have tried to elude the implications of their own analytical interpretations. Carnap considered that escape from subjective idealism was now effected, because his philosophy ruled out any interpretation of knowledge whatever. His philosophy could not be accused of limiting the reference of scientific statements to Hume’s “narrow compass” of the individual’s sense-data, because it refused to say anything at all about the meaning of statements but confined itself to investigating their syntactical forms and syntactical relations.

This was to lay the family ghost by refusing any longer to speak about it. Its howls, wails and clanking of chains as it stalked the eerie corridors of the positivist moated grange were to be ignored as meaningless.

But what were the consequences of the reduction of philosophy to “logical syntax”?

(a) Carnap regarded the task of “analysis of science” as the chief task of philosophy. This “analysis” was reduced to the analysis of scientific language. Questions of the meaning and validity of scientific statements were accordingly ruled out. The only account that could be given of science was that it was a changeable “system of sentences,” which had continually to be “brought into agreement”—the “agreement” being defined by the syntactical relations of each scientific sentence to the other sentences of the system. The “correctness” of any scientific theory depended on how it could be fitted into the existing system of scientific sentences, and on nothing else.

This account of science is based on nothing but a formal “analysis of the language of science.” It completely disregards the content of science. It completely disregards the actual process of the development of scientific knowledge and the discoveries of science which reveal the interconnections and laws of motion of the real world. In this respect it is a

philosophy more speculative, and more remote from science, than any previous speculative philosophy has ever been. The outcome of the logical positivist interpretation of science is the absolute divorce of philosophy from science.

This is not to say, however, that the logical positivist ideas are not connected with certain trends in the sciences, are not without influence in science and have not been largely applied in some of the recent formulations of scientific theory.

But what does this mean? Simply that logical positivist ideas reflect and assist the trend towards formalism in scientific theory, which is alien to the development of science as real knowledge of the external world.

The logical positivist views correspond, in fact, to the formalist trend in modern science. It is not demanded that scientific theories should present a comprehensible picture of the interconnections and laws of motion of the real world, but solely that they should contain formulæ, with rules for using these formulæ, which are in "agreement" with observational statements (called "protocol statements" in the logical positivist jargon).

Such formalism is uppermost at the present day in physics. Thus Dirac, for instance, said that it was impossible to "form a mental picture" of objective physical processes,<sup>1</sup> and the physicist should not try to do so. And this standpoint has even come temporarily to be regarded as "orthodox" in theoretical physics. The aim of physics is to work out formulæ which will enable the results of experiments to be calculated, but which cannot be "understood," and which no-one should try to understand, in the sense of their contributing to a "picture" of the real physical world.

It is just this collapse of science into formalism which is expressed in the logical positivist "philosophy of science."

(b) In the sphere of logic, the view that "logic is syntax" led to the conclusion that the principles of logic are purely arbitrary and conventional, so that the "logic" we adopt is entirely a matter of free choice. "Let any postulates and any rules of inference be chosen arbitrarily. . . ."<sup>2</sup>

Here again, in the sphere of logic, the logical positivist views correspond to an extreme formalism in logical theory. The

<sup>1</sup> Dirac: *Quantum Mechanics*, Preface to 1st ed.

<sup>2</sup> Carnap: *Logical Syntax*, p. x.

principles of logic are not regarded as the instrument of valid thinking about the real world, but are to be worked out in a purely formalistic way, as symbolic constructions.

The conclusions which logical positivism reaches in relation to both science and logic reveal it as a form of irrationalist philosophy. The attempted purging of positivism from metaphysics has only precipitated it into the morass of irrationalism. The agreement of scientific theory with the real world is denied, together with the practical test of that agreement. The very principles of rational thinking—the principles of logic—are made to depend on the arbitrary choice of the syntactical rules of language.

The burden of these conclusions of logical positivism is the impotence of science and reason as instruments of knowledge and their complete pointlessness in relation to the struggle for human welfare.

#### 4. PROFESSOR AYER SUMS UP

A useful summary of positivist conclusions has been provided by Professor A. J. Ayer, who has, however, succeeded only in bringing into the light of day the subjective idealist standpoint inherent in this philosophy, which Carnap had been so anxious to enshroud in the darkness of "logical syntax."

Professor Ayer himself says that his *Language, Truth and Logic* "has achieved something of the status of a text-book."<sup>1</sup> At the end of this text-book he naïvely remarks: "... there is nothing in the nature of philosophy to warrant the existence of conflicting philosophical parties or 'schools'. . . . Accordingly, we who are interested in the condition of philosophy can no longer acquiesce in the existence of party divisions among philosophers. For we know that if the questions about which the parties contend are logical in character, they can be definitively answered. And, if they are not logical, they must either be dismissed as metaphysical, or made the subject of an empirical enquiry."<sup>2</sup>

So Professor Ayer thinks that "party divisions among philosophers" have come to an end because the philosophical party of Wittgenstein and Carnap, to which he belongs, says

<sup>1</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 5.

<sup>2</sup> *Ibid.*, pp. 133-4.

that all other parties talk nonsense. He says that philosophy must reject all metaphysical system-building, must leave the investigation of matters of fact to empirical science, and must confine itself to the analysis of language. By this formula he thinks that the logical positivist school, of which he is a follower and populariser, has put philosophy on a new basis above schools and above parties.

Ayer takes his stand on the "rejection of metaphysics"—of "the metaphysical thesis that philosophy affords us knowledge of a reality transcending the world of science and common sense"<sup>1</sup> and "the superstition . . . that it is the business of the philosopher to construct a deductive system."<sup>2</sup> Metaphysics, he says, is "literally senseless"<sup>3</sup> because it consists of propositions which are neither "analytic" nor are capable of verification in experience.

A proposition can have meaning, he insists, only (1) if it is analytic, in the sense that "its validity depends solely on the definitions of the symbols it contains,"<sup>4</sup> or (2) if it states some fact or hypothesis verifiable in experience, i.e. if it is an empirical statement.

Empirical statements, he explains, are such as to satisfy the criterion of verifiability, which means that they function as "rules for the anticipation of future experience."<sup>5</sup> They always "refer ultimately to our sense-contents,"<sup>6</sup> and can always "be translated into propositions about sense-contents."<sup>7</sup> "Sense-contents" is Ayer's word for what Russell called "sense-data" and for what Mach called "the elements" of experience.

According to Ayer, the propositions of non-metaphysical philosophy are analytic statements about the kinds of symbols used in empirical statements. Philosophy is about words and consists of "definitions or the formal consequences of definitions."<sup>8</sup> As such, it performs a necessary service of "clarification and analysis."<sup>9</sup> It "clarifies" our empirical knowledge by translating it "into propositions about sense-contents."

<sup>1</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 33.

<sup>2</sup> *Ibid.*, p. 46.

<sup>3</sup> *Ibid.*, p. 151.

<sup>4</sup> *Ibid.*, p. 57.

<sup>5</sup> *Ibid.*, p. 45.

<sup>6</sup> *Ibid.*, p. 151.

<sup>7</sup> *Ibid.*, p. 51.

<sup>8</sup> *Ibid.*, p. 78.

<sup>9</sup> *Ibid.*, p. 59.

The "clarification" and "definitive" answer to questions given by Ayer's non-partisan philosophy is to say that everything of which we can form any conception—the whole "choir of heaven and furniture of earth," in Berkeley's phrase—is a "logical construction" out of "sense-contents."

As for "sense-contents" themselves, they are defined "as a part of sense-experience."<sup>1</sup> They do not "exist," says Ayer, they "occur." "When we say that a given sense-content or sense-experience exists, we are saying no more than that it occurs."<sup>2</sup> Everything that exists is a logical construction out of sense-contents which "occur" as a part of sense-experience.

It appears from this that in Ayer's philosophy sense-experience, consisting of the occurrence of sense-contents, is the ultimate reality, the metaphysical absolute, to which everything that exists is to be reduced, in terms of which all knowledge is to be translated. And from this it also appears that all Ayer's talk about the rejection of metaphysics, like all the similar talk of those from whom he learned it, is so much sham. This positivist doctrine of sense-experience as the ultimate reality is pure speculative metaphysics, however it may be disguised as an "analytic" doctrine about "language."

Expounding the metaphysical theory of sense-contents, Ayer explains that the realm of sense-experience is beyond and above such mundane distinctions as that between the mental and the physical.

"The answer to the question whether sense-contents are mental or physical is that they are neither; or rather, that the distinction between what is mental and what is physical does not apply to sense-contents. It applies only to objects which are logical constructions out of them. But what differentiates one such logical construction from another is the fact that it is constituted by different sense-contents, or by sense-contents differently related."<sup>3</sup>

This, of course, is intended to answer the objection that to reduce everything to parts of sense-experience is subjective idealism. Oh no, says Ayer; sense-contents are not subjective, they are not "mental." Far from sense-contents being mental,

<sup>1</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 122.

<sup>2</sup> *Ibid.*, p. 123.

<sup>3</sup> *Ibid.*



the mind itself is nothing but a logical construction out of sense-contents.

This "definitive answer" was first thought of at the end of the last century by Ernst Mach, who called it "neutral monism." The question which neither Mach nor Ayer have answered is the question: Can sense-contents ever "occur" except as part of the sense-experience of some sentient organism? Of course they cannot. Therefore Mach and Ayer are saying that all those external objects whose existence is reflected in the sense-experience of sentient organisms are nothing but "logical constructions" out of the parts of the sense-experience in which they are reflected. And this is subjective idealism—a definite school, a definite party in philosophy. It is a much discredited party—so much discredited, that those who belong to it will go to any length of verbal trickery to make out that they do not belong to it.

As for "material things," the objects of the external material world, Ayer says that "the existence of a material thing is defined in terms of the actual and possible occurrence of the sense-contents which constitute it as a logical construction."<sup>1</sup> Thus "to speak about material things is, for each of us, a way of speaking about sense-contents, . . . each of us 'constructs' material things out of sense-contents."<sup>2</sup>

Having said this, Ayer once again protests that he is not a subjective idealist.

"But although it is a fact that a sense-content cannot by definition occur without being experienced, and that material things are constituted by sense-contents," he explains, "it is a mistake to conclude, as Berkeley did, that a material thing cannot exist unperceived. . . . There is, indeed, no contradiction involved in asserting the existence of a material thing which is never actually perceived. For, in asserting that the thing existed, one would be asserting only that certain sense-contents would occur if a particular set of conditions relating to the faculties and the position of an observer was fulfilled; and such a hypothetical proposition may very well be true, even though the relevant conditions are never fulfilled."<sup>3</sup>

<sup>1</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 123.

<sup>2</sup> *Ibid.*, p. 65.

<sup>3</sup> *Ibid.*, pp. 140-1.

In this passage Ayer does less than justice to Berkeley, who more than two hundred years ago gave an identical "explanation" of how material things could "exist unperceived." Referring to the table in his study, Berkeley explained that although it was, to use Ayer's terminology, a "construct out of sense-contents," nevertheless there was a clear sense in which he could say that the table existed even when he was not perceiving it—"meaning thereby that if I was in my study I might perceive it, or that some other spirit actually does perceive it."<sup>1</sup> Similarly it may be said that the mountains on the other side of the moon "exist"—"meaning thereby" that although no-one has ever yet perceived them, it may be supposed that when men go round the moon in a space-ship they will perceive them.

There is literally no disagreement whatever between Ayer and Berkeley on this score. What the subjective idealist Berkeley denied was not that there was a sense in which material things could be said to "exist unperceived," but was their "*absolute* existence . . . without any relation to their being perceived."<sup>2</sup> And this is what Ayer denies, too.

Without originality but, according to his own account of it, "with more passion than most philosophers allow themselves to show,"<sup>3</sup> Professor Ayer has summed up the teachings of modern positivism.

Tricky to the last, Professor Ayer even says that the positivist doctrines he expounds are not positivism. The "positivist verification principle," he declares, says that statements have meaning only when some experience could "conclusively" verify them. But yet there are many meaningful statements which can never be "conclusively" verified. Such a statement as "All men are mortal," for example, is verified every time someone dies, but yet is never *conclusively* verified; for, however many people may die, it is never conclusively shown that there are still not some men living who will never die. Therefore, says Professor Ayer, "we dissent" from "the positivist verification principle" and adopt the verification

<sup>1</sup> Berkeley: *Principles of Human Knowledge*, 3.

<sup>2</sup> Ibid.

<sup>3</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 5.

principle in "a weakened form," which allows that verification need not always be "conclusive."<sup>1</sup>

"We dissent" from positivism, says Ayer. And yet there is not a positivist, living or dead, who would not "dissent" with him.

Positivism, says Ayer, stands above parties in philosophy. But in philosophy there is the party of those who say that material things are constructs out of sense-experience and that therefore the existence of material things is dependent on the existence of sense-experience, and the party of those who say that the existence of sense-experience is dependent on the existence of material things. Positivism is a partisan of the one party against the other. Like the "Independents" in local elections, its non-partisanship is a trick to conceal a party policy.

Ayer tries to make out that the teachings of positivism are unassailable because they are "analytic." They "do not describe the behaviour of physical, or even mental, objects; they express definitions, or the formal consequences of definitions."<sup>2</sup>

Thus he "defines" a "material thing" in terms of the actual or possible "occurrence of sense-contents," and from this "definition" draws "the formal consequence" that "material things are constituted by sense-contents." This conclusion is unassailable, he then declares, because it is the formal consequence of a definition. A material thing is *by definition* a construct out of sense-contents—just as a professorship in philosophy, for example, is by definition a post held in a university. There can be no possible argument about it.

This is an example of the way positivist philosophy has taken refuge in scholastic word-mongering. Of course, you may define words however you like, but the question remains as to whether your words bear any relationship to real things. For example, one might define capitalism as a system for securing the greatest happiness of the greatest number by means of the free play of private enterprise—but the question would remain as to whether this definition did or did not correspond to the actual reality of capitalist society. When Ayer defines

<sup>1</sup> A. J. Ayer: *Language, Truth and Logic*, 2nd ed., p. 135.

<sup>2</sup> *Ibid.*, p. 57.

material things as constructs out of sense-contents the question remains as to whether this definition fits the material things with which we have dealings in our actual experience. For if one ceases to write down definitions of imaginary "constructs" and attends to the lessons of practical life, then it is evident that material things have absolute existence independent of their being perceived, and that the positivist "definition," with all its "formal consequences," is nothing but a piece of verbal trickery.

In summing up the doctrines of positivism, Ayer has at least succeeded in exposing very clearly their real character.

He makes it clear that, however disguised by "logical" phraseology, *positivism is a metaphysical system of subjective idealism*, which teaches that the world is nothing but a "logical construction" which "each of us constructs" out of our sense-experience.

He makes it clear that *positivism is a system of verbal trickery*, which evades the issues of the real relations of things by scholastic quibbling about words.

And he makes it clear that *positivism is a system of irrationalism*, which side-tracks logic into formalistic definitions and science into "anticipation of future experience," denying the power of reason and science to create tools of thought and action which can win knowledge of the objective world and power to change the world.

### 3. POSITIVISM IS NOT A SCIENTIFIC PHILOSOPHY

Positivism sets off from the standpoint that it is futile to construct philosophical "systems": all knowledge must be based on experience and empirical science is the only road to positive knowledge.

The admirers of positivism point to it as a line of philosophical inquiry which makes a decisive break with the systems of the past and opens up an entirely new—scientific and empirical—development of philosophy.

What the admirers of positivism do not stress, however, are those basic characteristics of positivism which mark it down as anything but a scientific philosophy.

(1) The primary characteristic of positivism is that, in maintaining that empirical science is the only road to positive

knowledge, it conceives the task of philosophy as being to interpret and "clarify" the results of science. And it does this on the basis of a theory of knowledge according to which individual percepts are the data from which the whole body of knowledge is derived. On the basis of such a theory of knowledge, scientific knowledge is interpreted, not as knowledge of the interconnections and laws of motion of the objective world, but as restricted to sense-data, their orders, correlations and structures.

(2) It follows that the essence of positivism is that it always seeks to set limits to the scope and power of human knowledge.

Whereas scientific inquiry is the means whereby mankind can continually extend their knowledge of nature and dominion over nature; and whereas scientific progress demands that whatever limits are encountered shall be overcome, and science, by developing new techniques and new ideas, has always overcome them; positivism, on the other hand, erects in its philosophical scheme an absolute limit to the scope of scientific knowledge.

(3) Further, because positivism limits knowledge to the correlation of observational data, and sees such data as the starting point of all knowledge, it follows that it can never find the justification of the very scientific methods which it says are the methods of acquiring knowledge, and can give no rational account of these methods.

Starting from the individual data of sense, how can we justify the theory and practice of science?

Positivists are always driven, like Russell, to the invention of all manner of "postulates" to justify scientific inferences, which they have to admit are themselves incapable of rational justification. And in the last resort, either they reach the conclusion, like Carnap and Neurath, that science is simply a system of propositions built up by applying arbitrary rules agreed upon by scientists; or else, like Hume and like Russell, they come to say that the whole of our understanding of the world is based on nothing better than inborn habits and instincts.

Thus positivism, beginning by restricting the scope of scientific knowledge to the correlation of sense-data, ends by denying that any rational foundation can be found for

scientific method. The positivist "logic" finishes by abolishing logic.

(4) Positivism, which claims to be opening up a new path in philosophy, away from the metaphysical speculations of the system-builders, retains within itself all the elements of metaphysical speculation.

Interpreting scientific knowledge in terms of the correlation of sense-data, positivism is driven to all kinds of speculative inventions concerning what constitute the "elements" of the known world. Indeed, sense-data themselves—these strange "atoms" of "experience"—are just one such invention. In place of the material world known to science there is invented a metaphysical world of "sense-data," of "elements," of "logical constructions," of "structures," of "inferred" entities of "unknown quality." And the meaning and scope of the propositions of science is supposed to be made clear in terms of all these inventions.

The positivist method in philosophy thus proves itself a fruitful method only for the production of new metaphysical speculations, and not at all, as the positivists claim, for the ending of such speculations. The positivist metaphysics is fully as speculative as any other, and fully as obscure and far-fetched.

(5) Therefore, just like the speculative philosophies of the past, which positivism claims to be supplanting by a new and scientific method in philosophy, positivism itself establishes a philosophy above science, a new system, which seeks to impose upon the development of science the demands of a philosophical system.

Positivism seeks to impose upon science its own philosophical interpretation of science. It seeks to legislate for science, laying down what must be the form of all scientific theories, and rigidly delimiting the scope and purport of all possible scientific knowledge.

(6) And lastly, in seeking to reduce science to hypotheses about the correlations of sense-data, reducing scientific method to a set of arbitrary rules, and so denying the possibility of scientific understanding of the objective world and man's place in it, positivism not only falsifies but negates science and becomes the ally and support of every form of anti-scientific ideology.

For science—genuine science, not the “science” of the positivists—is the enemy of superstition and mysticism. Doctrines about the supernatural, dark sayings about the mysterious nature of the universe, views which elevate tradition, authority, intuition and faith above experience and reason—all of these are discarded in the light of advancing scientific knowledge. But if, as positivism teaches, science has after all discovered nothing about the objective world but deals only with the correlation of sense-data, then obscurantism has nothing to fear from science. And if science simply formulates its theories by applying its own chosen rules, then obscurantism has its own rules of procedure too, which can claim at least as much or as little foundation as those of science. And so it comes about that obscurantists of all kinds are continually making use of positivist arguments in their fight against science and scientific enlightenment.

The positivist interpretation of science in effect reconciles science and obscurantism, so that the very achievements of science, positivistically interpreted, are turned into arguments against the scientific view of the world and of human nature.

In the same way, every kind of irrationalist view of the world and of human affairs is reinforced by the positivists’ “discovery” that scientific method itself is based on nothing but postulates, rules or habits without rational foundation.

## PART THREE: TWO CAMPS IN PHILOSOPHY

### CHAPTER 13

#### DIALECTICAL MATERIALISM

##### 1. DIALECTICAL MATERIALIST CONCEPTION OF LAWS OF CHANGE AND DEVELOPMENT

###### *The Task of Philosophy*

POSITIVISM rules out from philosophy all consideration of the nature of the objective world, and similarly of the thought processes through which we build our knowledge of the objective world. It succeeds only in reducing philosophy to a barren, abstract and formal analysis of language.

But philosophy is the attempt to understand the nature of the world and our place and destiny in it. The task of philosophers has always been to enrich this understanding and to generalise its conclusions. This is what the great systematic philosophers of the past essentially tried to do. And the measure of their greatness has always been the extent to which they succeeded in expressing in their philosophical generalisations the totality of social experience and scientific discovery available at their time. This explains, incidentally, why it is always impossible either to appreciate or criticise them except on the basis of a consideration of the historical circumstances which at once conditioned the way their problems were presented and the way they set about solving them.

The positivists, and particularly the latest "logical" positivists, explicitly reject the classical aim of philosophy to give an account of the world and of man. They reject philosophy because they separate it from science and from life. They begin by saying that whatever we can know about the world and about human society is expressed in the propositions of the natural and social sciences, and that philosophy has nothing to do with either—it is concerned with analysis of language, a particular, specialised study. Then from this



analysis of language they go on to say that the sciences can reveal nothing about the objective world—about the objective laws of motion and interconnection in nature and society—but are concerned solely with the correlation of observational data. Thus their rejection of philosophy in the classical sense is at the same time a rejection of scientific knowledge. When they reject philosophy as an account of the nature of the world and of human society, they are at the same time rejecting science.

In opposition to positivism, it is necessary to reinstate the classical aim of philosophy. But not in the sense of inventing new philosophical systems. Their time is indeed past. There can no longer be room for any philosophy standing above the sciences and claiming to base a universal system of the world on principles different from those employed in empirical scientific investigation.

What is required of philosophy is rather that it should draw its principles and conclusions from the sciences themselves; that it should be a generalisation of the sciences, based on the sciences and continually enriched as the sciences advance; and that it should at the same time itself become a weapon of the sciences, a method penetrating the sciences and guiding the strategy of scientific research and the formulation of scientific theory.

And in contrast to the systems of the past, whose aim was confined to interpreting the world, such a philosophy has the aim of showing how men can effectively change the world.

In the course of its gigantic development in modern times, the scientific method of investigation has been extended to cover field after field, so that no part, no aspect of nature or of human society is closed to scientific investigation. There have been scored major achievements of scientific analysis—the analysis of complexes into their constituents, of macro-processes into micro-processes. And from this development of science in its entirety has emerged the conclusion that neither the world as a whole nor any of its parts can be regarded, as both scientists and philosophers tended to regard it in the 17th and 18th centuries, as something whose general nature was fixed and static—given once and for all; but that the world as a whole and everything in it is subject to the laws of change and takes part in a historical process of development.

From the static conception of nature as the eternal repetition of the same kinds of processes, in which the same kinds of things keep on repeating the same kinds of movement, science has advanced to evolutionary conceptions. Evolutionary ideas have taken possession of one field after another—for instance, in the theories of the origin and development of the solar system, and likewise of the stars and of the galaxy; in geology, which traces the history of the evolution of the earth's crust; in another way in chemistry, with Mendeleyev's periodic scheme of the elements; in biology, with the theory of the evolution of organic species; and in the various conceptions of the stage-by-stage evolution of human society.

From all this, then, stands out a fundamental task of philosophy, which is to generalise from the sciences the conception of the laws of change and development manifested in nature and society; and in discovering these most general laws—the laws of dialectics—to provide the sciences with a theoretical instrument, a method, for the prosecution of their researches and for the theoretical formulation of the laws of motion operative in their particular spheres.

Again, the advance to evolutionary conceptions in science, which expressed the discovery of the real evolution in nature and society, coincided with the development of industrial capitalism in the late 18th century and in the 19th century. But this coincidence was no mere coincidence: it expressed a causal connection. The rise of industrial capitalism and of the industrial bourgeoisie, which supplanted the earlier manufacturing and mercantile phase, not only set science new problems to answer and directed inquiry into new fields, arising from the transformation taking place in all spheres of production; it bred the conception that in human society and throughout the whole of nature nothing was permanent and fixed, but everything was in process of change—that a continual forward movement was the law of the universe.

This meant that in every sphere science looked for, and found, not fixity but process.

"The bourgeoisie," wrote Marx and Engels, "cannot exist without constantly revolutionising the instruments of production, and thereby the relations of production, and with them the whole relations of society. Conservation of the old modes

of production in unaltered form was, on the contrary, the first condition of existence for all earlier industrial classes. Constant revolutionising of production, uninterrupted disturbance of all social conditions, everlasting uncertainty and agitation, distinguish the bourgeois epoch from all earlier ones. All fixed, fast frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away, all new-formed ones become antiquated before they can ossify.”<sup>1</sup>

These were the conditions which gave rise to the conception of a universal evolution in nature and society. And thus the task of philosophy, to generalise the laws of change and development, follows, not only from the discoveries of the sciences, but from the whole complex of the movement of modern society in its entirety.

But more than that. This problem of philosophy is no mere academic problem of generalisation, but takes on a peculiar practical urgency.

The bourgeoisie has continually revolutionised the instruments of production, and enormous new powers of production are placed at the disposal of society. But capitalist society is rent with contradictions. While production has become socialised, it is still subjected to private, capitalist appropriation.

“In this contradiction, which gives the new mode of production its capitalist character, the whole conflict of today is already present in germ,” wrote Engels. “The more the new mode of production gained the ascendancy in all decisive fields of production and in all countries of decisive economic importance, pressing back individual production into insignificant areas, the more glaring necessarily became the incompatibility of social production and capitalist appropriation. . . . The contradiction between social production and capitalist appropriation became manifest as the antagonism between the proletariat and the bourgeoisie . . .” and again as “the antagonism between the organisation of production in the individual factory and the anarchy of production in society as a whole. The capitalist mode of production moves in these two forms of the contradiction immanent in it from its very nature.”<sup>2</sup>

<sup>1</sup> Marx and Engels: *Manifesto of the Communist Party*, ch. 1.

<sup>2</sup> Engels: *Socialism, Utopian and Scientific*, ch. 3.

It results that men in capitalist society face a contrast between the enormous new powers of production at their disposal and their apparent lack of ability to control and organise them. Instead of leading to universal plenty, the growth of the powers of production leads to recurrent economic crises, to unemployment, to poverty and to war.

This means that the philosophical problem of generalising the laws of change and development becomes the problem of so understanding the forces at work in the processes in which we ourselves are involved that we are able to master them. The problem of finding how to interpret the world becomes the problem of finding how to change it. Philosophy must cease to be only the intellectual exercise of men of learning and must become the possession of the masses, their theoretical weapon in their struggle to end the conditions which oppress them and to find the road to emancipation.

### *Marxism, the French Materialists and Hegel*

Bourgeois philosophy succeeded in recognising the universality of change and development, but it could do no more than speculate about its laws.

In the chapter on "Dialectical Materialism" in his *Ludwig Feuerbach and the Outcome of Classical German Philosophy*, Engels wrote:

"The great basic thought that the world is not to be comprehended as a complex of ready made things, but as a complex of processes, in which the things apparently stable, no less than their mind-images in our heads, the concepts, go through an uninterrupted change of coming into being and passing away in which, in spite of all seeming accidents and of all temporary retrogression, a progressive development asserts itself in the end—this great fundamental thought has, especially since the time of Hegel, so thoroughly permeated ordinary consciousness that in its generality it is scarcely ever contradicted."<sup>1</sup>

This "great fundamental thought" of the universality of change and development, and of the progressive character of development, as development from lower to higher, is the highest point reached by bourgeois philosophy. It is the

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.

starting point of the philosophy of dialectical materialism. So far as latter-day positivism is concerned, on the other hand, it has beaten a wholesale retreat from such a standpoint.

The central achievement of Marx and Engels in philosophy, their discovery, was the discovery of the dialectical laws of the processes of change and development taking place in the real material world; and this was at the same time the discovery of the dialectical method of the scientific understanding of those processes.

The philosophy of Marx and Engels cannot be understood as merely a continuation, or synthesis, of the work of their predecessors. In posing, as they did, philosophy's problem of generalising the laws of change and development in nature and society, and in finding the way to solve this problem, they effected a veritable revolution in philosophy—they left the old philosophy behind them, and began a new, scientific philosophy.

But, of course, their discovery did not come out of the void. The way for it was prepared by the most progressive achievements of the previous bourgeois philosophy; and these were, on the one hand the mechanistic materialism of the great French philosophers of the 18th century, on the other hand the philosophy of Hegel.

The French mechanistic materialists sought to embrace everything, including man and all his spiritual activities, in a single mechanistic system of the universe. They started from the static view of nature typical of the mechanistic science of the 17th and 18th centuries; but this did not stop them from being pioneers in the conception of evolution.

Thus, for example, the mechanical materialist Condorcet advanced the conception of the progressive movement of human society through stages whose development followed definite laws, and he endeavoured to correlate these stages with corresponding advances of production technique. Diderot taught the inseparability of matter from motion. And the highest achievement of the French mechanistic materialism was the "zoological philosophy" of Lamarck, who based his theory of evolution on the conception that the nature of the living organism was determined by its environment.

Thus the philosophy of the French mechanistic materialists

led to the conclusion that the world and everything in it was in continual process of change and development, and that this process proceeded by laws that could be discovered by science and formulated with strict scientific accuracy. Yet this conclusion was in contradiction to their conception of the universe as a mechanical system. They could recognise development, but the mechanistic categories which were their tools of thinking would not suffice to explain it.

Hegel, on the other hand, contributed to philosophy his conception of dialectics.

"Everything that surrounds us may be viewed as an instance of dialectic," he wrote. "We are aware that everything finite, instead of being stable and ultimate, is rather changeable and transient; and this is exactly what we mean by that dialectic of the finite, by which the finite, as implicitly other than what it is, is forced beyond its own immediate or natural being to turn suddenly into its opposite."<sup>1</sup>

But when Hegel said that everything was "an instance of dialectic," he did not conceive of the laws of dialectics as being primarily the laws of change and development of the material world. He conceived of dialectical movement rather as the property of thinking; and thinking he made into an absolute—God—somehow existing apart from the material world, but creating the material world and realising itself in it. Thus if "everything finite" was, as he put it, "radically self-contradictory," and was always "forced to turn suddenly into its opposite," this was because "its concept" was self-contradictory: the thing which realised that concept could not, therefore, be stable, but must eventually turn into something else.

Thus in the last analysis, according to Hegel, to understand the laws of motion of the processes which occur in the world requires, not the investigation of those processes themselves, but, as he put it, the "speculative" working out of the concept of which they were the materialisation. Hegel announced that what he called "the speculative stage" of thinking was the highest stage of all, and that "speculative truth" was the highest truth. "Speculative truth," he added, "means very

<sup>1</sup> Hegel: *Encyclopædia of the Philosophical Sciences: Logic*, ch. VI, 81. Translated by William Wallace.

much the same as what, in special connection with religious experience and doctrines, used to be called mysticism.”<sup>1</sup>

Hegel’s conception of dialectics was, then, a mystical one. For him the laws of dialectics expressed the self-movement of the “Absolute Idea,” which was universal thought, transcending every finite mind, creating the real world in space and time, manifesting various aspects of itself in the temporal process, and driving forward “world history.”

“According to Hegel,” Engels writes, “dialectics is the self-development of the concept. The Absolute Idea does not only exist—where unknown—from eternity, it is also the actual living soul of the whole existing world. . . . According to Hegel, therefore, the dialectical development apparent in nature and history, i.e., the causal interconnection of the progressive movement from the lower to the higher, which asserts itself through all zig-zag movements and temporary set-backs, is only a miserable copy of the self-movement of the Idea going on from eternity, no one knows where, but at all events independently of any thinking human brain.

“This ideological reversal,” he continues, “had to be done away with. We [i.e., Marx and Engels] comprehended the concepts in our heads once more materialistically—as images of real things, instead of regarding the real things as images of this or that stage of development of the Absolute Idea. Thus dialectics reduced itself to the science of the general laws of motion, both of the external world and of human thought. . . . Thereby the dialectic of the concept itself became merely the conscious reflection of the dialectical motion of the real world and the dialectics of Hegel was placed on its head; or rather, turned off its head, on which it was standing before, and placed on its feet again.”<sup>2</sup>

Because of the upside down, idealist way in which Hegel conceived of dialectics, Engels pointed out, “in its Hegelian form this method was unusable.”<sup>3</sup>

Marx and Engels by no means practised the Hegelian method. What they did was precisely stated by Engels, as follows:

<sup>1</sup> Hegel: *Encyclopædia of the Philosophical Sciences; Logic*, ch. VI, 82. Translated by William Wallace.

<sup>2</sup> Engels: *Ludwig Feuerbach*, ch. 4.

<sup>3</sup> *Ibid.*

“The revolutionary side of Hegelian philosophy was taken up and at the same time freed from the idealist trammels which in Hegel’s hands had prevented its consistent execution.”<sup>1</sup>

For Marx and Engels, the laws of dialectics were not the laws of the self-movement of the Absolute Idea but the laws of the self-movement of material processes; and the dialectical method was not the method whereby the human mind could put itself in accord with “universal mind,” but the method for the scientific understanding of the processes of the material world.

This development of the revolutionary side of Hegel’s philosophy, and freeing of the dialectical method from its idealist trammels, was in philosophy a discovery of epoch-making importance, namely, the discovery of how to comprehend the processes of the real material world in a consistently materialist way. And so, too, it marked the carrying to completion of what the earlier materialist philosophers had attempted, and had failed to do on account of the mechanistic limitations of their thinking.

The discovery of Marx and Engels showed how to understand real processes of development scientifically. This does not mean that it provided any set of formulæ (three, four or any number of “laws”) which represented the complete and final formulation of the dialectical conception of the world. For no genuine discovery is ever a final and absolute truth, but is rather the starting point for a new development of scientific understanding. The discovery of Marx and Engels provided, not the complete and final truth about the laws of motion of nature and history, but a basis for developing our scientific understanding of them.

In this way, too, it signified the decided rejection of the old aim of philosophy—which was the aim of the mechanistic materialists no less than of Hegel—to work out a universal system of the world.

“As soon as we have realised,” Engels wrote, “that the task of philosophy thus stated means nothing but the task that a single philosopher should accomplish that which can only be accomplished by the entire human race in its progressive development—as soon as we realise that, there is an end of all

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.



philosophy, in the hitherto accepted sense of the word. One leaves alone 'absolute truth,' which is unattainable along this path or by any single individual; instead, one pursues attainable, relative truths along the path of the positive sciences, and the summation of their results by means of dialectical thinking."<sup>1</sup>

*Materialism versus Idealism in the Conception of  
Change and Development*

The scientific value of the method of Marx and Engels can be appreciated, in a general way, by considering the conceptions of universal change and development advanced by various philosophers since Hegel and since Marx.

According to Hegel everything was in process of change and development, and this development happened "because the universal mind at work in the world (the 'world spirit,' *weltgeist*) has had the patience to go through these forms in the long stretch of time's extent, and to take upon itself the prodigious labour of the world's history."<sup>2</sup>

According to Herbert Spencer there was a process of universal evolution, which he described as "a change from a less coherent form to a more coherent form, consequent on the dissipation of motion and integration of matter. This is the universal process through which sensible existences, individually and as a whole, pass during the ascending halves of their histories."<sup>3</sup> He thought there might also be a "descending" half afterwards.

But why this process of the increasing "integration of matter"? Herbert Spencer could assign no characteristic of matter to account for it, and so concluded that: "We are obliged to regard every phenomenon as a manifestation of some Power by which we are acted upon," and which he described as "Incomprehensible" and "Omnipresent"—both with capital letters in deference to this remarkable Power, the consciousness of which was, he said, "that consciousness on which Religion dwells."<sup>4</sup>

Bergson was another philosopher who had a conception of

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.

<sup>2</sup> Hegel: *Phenomenology of Mind*, translated by J. B. Baillie, p. 90.

<sup>3</sup> H. Spencer, *First Principles*, Part II, ch. 14, section 115.

<sup>4</sup> *Ibid.*, Part I, ch. 5, section 27.

universal evolution. He also put it down to a mysterious force, immanent in the universe—the *elan vital*, or life force. Bernard Shaw also believed in this “life force,” invoking it to account for everything, including the interesting behaviour of the heroines of his plays and the effect of this behaviour on his heroes.<sup>1</sup>

Fairly recently a school of philosophy has emerged in England, calling itself “Emergent Evolution.” According to Samuel Alexander and C. Lloyd Morgan, who were the leaders of this school, the universe exhibits a progressive process of the “emergence” of higher forms of organisation of matter from lower forms of organisation. From the physical level of organisation emerges the chemical level, then life, then human society. Each level presents new qualities and new laws of motion.

But for these philosophers the fact of emergence was always a mystery: they could assign no features of the lower levels of organisation which might lead to new qualities emerging. Thus Samuel Alexander said that emergence was always inexplicable, and had to be accepted, quoting a phrase of Wordsworth, “with natural piety.” In line with this, he thought some new and inexplicable development would one day happen to mankind, and suggested that this might be the emergence of the quality of “deity” amongst men. Lloyd Morgan said we could only acknowledge the presence of some immanent force at work in the world, which he identified with God.<sup>2</sup>

More recently still, A. N. Whitehead has worked out a philosophy of “process,” in which he ends up by seeing all processes as exemplifying the “ingression of Eternal Objects” into the world of space and time.<sup>3</sup>

All these philosophies, which cover a period of over a century, have it in common that they invoke spiritual or incomprehensible principles of some sort—the World Spirit, an unknown

<sup>1</sup> See *Man and Superman*, Act IV:

ANNA: . . . You do not love me.

TANNER: (*seizing her in his arms*) No, it is false. I love you. The life force enchants me.

<sup>2</sup> See S. Alexander, *Space, Time and Deity*; C. Lloyd Morgan, *Emergent Evolution*.

<sup>3</sup> See Whitehead: *Process and Reality*.

Power, the Life Force, God, Eternal Objects—to account for the processes of development which happen in the real world. Hegel, at the beginning of the list, Whitehead at the end, are distinguished by their saying that the nature of the transcendent reality which they invoke—the Absolute Idea and the realm of Eternal Objects respectively—can be grasped, at least in its essentials, by human reason. But although they say this, they are unable to make good what they say. The others are content, without a struggle, to let the incomprehensible remain so, merely affixing their various labels to it, much as if the distinguishing feature of the philosophy of each was that each wrote the letter “X” in a different coloured ink.

In all these philosophies some fantasy, some transcendental principle, is invoked to account for the development that happens in the world. This is as much as to say that they fail to grasp how this development can be understood scientifically, and what are the forces of development. Such is the essential feature of the idealism which characterises all these evolutionary philosophies.

In contrast to this, Engels states the aim of the materialist approach of himself and Marx. They adopted, he states, “the materialist standpoint. That means it was resolved to comprehend the real world—nature and history—just as it presents itself to everyone who approaches it free from preconceived idealist fancies. It was decided relentlessly to sacrifice every idealist fancy which could not be brought into harmony with the facts conceived in their own and not in a fantastic connection. And materialism means nothing more than this.”<sup>1</sup>

In the dialectical materialist method, the discovery of Marx and Engels, “the materialist world outlook was taken really seriously for the first time and was carried through consistently—at least in its basic features—in all domains of knowledge concerned.”<sup>2</sup>

The discovery of the dialectical materialist method was the discovery of how, without idealist fancies, to understand scientifically the real processes of development of the material world in nature and society.

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.

<sup>2</sup> *Ibid.*

## / 2. THE METHOD OF DIALECTICAL MATERIALISM

What, then, is the essence of the dialectical materialist conceptions which Marx and Engels introduced in place of idealist fancies in the understanding of processes of development?

In the first place, universal features of real processes of development are presented—not as part of a speculative philosophical system but on the basis of generalising the scientific empirical study of real processes of development exhibited in the world.

In the second place, the dialectical method is then presented as the method of thinking which has to be adopted if we are to deal with processes of development as they actually happen.

Hence the principles of the dialectical method are necessarily two-sided, on the one hand generalising the objective laws of development, on the other hand formulating a method of investigation.

*Principal Features of the Marxist Dialectical Method*

In the *History of the Communist Party of the Soviet Union*, Stalin summed up “the principal features of the Marxist dialectical method” under four heads.<sup>1</sup>

And characteristic of this, the clearest and most comprehensive presentation of the philosophic discoveries of Marx and Engels, is the fact that under each head there is presented, first the statement of some universal feature of material processes, and second the statement of a methodological conclusion about the way scientifically to investigate and understand material processes. For the dialectical method is a method of scientific investigation and understanding, based on the appreciation of universal features of the real material world. And the statement of these universal features is not presented as the statement of a speculative philosophical system, but as the basis of the dialectical method of understanding real processes of development scientifically.

I shall summarise Stalin’s summary only very briefly, since it is well known to all students of Marxism.

(1) Things and processes do not exist unconnected with and

<sup>1</sup> See Stalin, *Dialectical and Historical Materialism*.

independent of each other but "are organically connected with, dependent on, and determined by, each other."

Therefore "no phenomenon in nature can be understood if taken by itself," but only "if considered in its inseparable connection with surrounding phenomena, as conditioned by surrounding phenomena."

(2) Change is a universal feature of the world. There is always "renewal and development, where something is always arising and developing, and something always disintegrating and dying away."

Therefore phenomena must be considered "not only from the standpoint of their interconnection and interdependence, but also from the standpoint of their movement, their change, their development, their coming into being and going out of being."

(3) Development is "not a single process of growth," but quantitative changes pass into "open, fundamental qualitative changes," which are "a leap from one state to another." Such changes do not occur accidentally, "but as the natural result of an accumulation of imperceptible and gradual quantitative changes."

Therefore development is always to be understood "as a transition from an old qualitative state to a new qualitative state, as a development from the simple to the complex, from the lower to the higher."

(4) "Internal contradictions are inherent in all things and phenomena of nature." And "the internal content of the process of development, the internal content of the transformation of quantitative changes into qualitative changes" lies in "the struggle of opposite tendencies which operate on the basis of these contradictions."

Therefore development is only to be understood, not "as a harmonious unfolding of phenomena," but as arising out of the struggle of opposite tendencies which operate on the basis of the internal contradictions inherent in all phenomena of nature.

Stalin here quotes a statement of Lenin, taken from his *Philosophical Notebooks*: "In its proper meaning, dialectics is the study of the contradictions within the very essence of things."

In his notes *On Dialectics*, Lenin wrote that "the condition for understanding processes of development" was "the

recognition . . . of the contradictory, mutually exclusive, opposite tendencies in all phenomena and processes of nature, including mind and society. . . .

"Development is the struggle of opposites," he continued. And without this conception it was impossible to discover "the driving force" of development, which therefore remained obscure, or was put down to something external, such as God.

Lenin wrote that the conception of dialectical contradiction was the key conception of the dialectical method, for it "alone furnishes the key to the self-movement of everything in existence; it alone furnishes the key to the leaps, to the breaks in continuity, to the transformation into the opposite, to the destruction of the old and the emergence of the new. The unity of opposites is conditional, temporary, transitory, relative. The struggle of mutually exclusive opposites is absolute, just as development and motion are absolute."<sup>1</sup>

Summing up the entire significance of the materialist method of dialectics, Lenin stressed that the philosophical discoveries of Marx and Engels led to a richer and more comprehensive conception of processes of development.

"The revolutionary side of Hegel's philosophy was adopted and developed by Marx," he wrote. ". . . Nowadays the idea of development, of evolution, has penetrated the social consciousness almost in its entirety, but by different ways, not by the way of the Hegelian philosophy. But as formulated by Marx and Engels on the basis of Hegel, this idea is far more comprehensive, far richer in content than the current idea of evolution. A development that seemingly repeats the stages already passed, but repeats them otherwise, on a higher basis ('negation of negation');—a development, so to speak, in spirals, not in a straight line;—a development by leaps, catastrophes, revolutions;—'breaks in continuity';—the transformation of quantity into quality;—the inner impulses to development, imparted by the contradictions and conflict of the various forces and tendencies acting on a given body, or within a given phenomena, or within a given society;—the interdependence and the closest, indissoluble connection of *all* sides of every phenomenon (while history constantly discloses ever new sides), a connection that provides a uniform, law-

<sup>1</sup> Lenin: *On Dialectics*.

governed, universal process of motion—such are some of the features of dialectics as a richer (than the ordinary) doctrine of development.”<sup>1</sup>

It is precisely this richer, more comprehensive conception of processes of development that contributes to their scientific understanding, and removes the need for inventing idealist fancies to account for processes of development.

Thus the conception of the contribution of all the past stages to every new phase of development—of the interconnection of all sides of every process, which combine to produce every new phenomenon—of the transformation of quantitative into qualitative changes, by a break in continuity—of the impulses to development imparted by the contradictions contained within every process of nature and history—these conceptions are the instruments, the method, for understanding the course of development in terms of scientifically assignable factors operating within the material world itself, without appeal to the unknowable or the supernatural.

There is then no need to put world history down to “the prodigious labour of the World Spirit.” There is no need to appeal to any “incomprehensible and omnipresent Power.” There is no need to postulate a “life force.” There is no need to suppose that “Eternal Objects” ingress into the world. Nor is there need to accept the emergence of new qualities “with natural piety,” since the causes of the emergence of the new can be assigned in the many-sided development of the old—in the transformation of quantitative into qualitative changes, resulting from the operation of the internal contradictions within the pre-existing system of changes.

This is not to say that dialectics gives some formula for working out from first principles the complete explanation of everything that has happened in the past and predicting everything that will happen in the future. Far from it. Nothing can be explained from first principles, but only from the the empirical investigation of the facts; and prediction is necessarily limited, both in scope and accuracy, by the limitations of present knowledge. What dialectics does is to provide the method for seeking an explanation, and for so understanding the real factors operating in the real world as to be able, not

<sup>1</sup> Lenin: *Karl Marx*.

so much, or not only, to foretell the course of the future, but to shape and control it.

For example, according to the idealist notions of Samuel Alexander the past development of the world can never be explained. But dialectical materialism teaches that it *can* be explained—not by philosophic speculation, but by the methods of empirical investigation guided by the dialectical conception of the factors of development. According to the same idealist notions, the future is shrouded in darkness, but we are permitted a happy vision of the emergence of the quality of deity. But dialectical materialism teaches that when we understand the real forces of historical development we can shape and determine the future—not by waiting for men to turn into gods, but by creating the material conditions for human freedom.

### *Dialectics versus Mechanism*

At the same time as the dialectical method cuts out idealist fancies from the conception of development, it overcomes the limitation and narrowness of the old type of mechanistic materialism.

The conceptions of dialectics are opposed to those of mechanism. But what is the essence of the mechanistic approach to phenomena? A good deal of confusion exists on this question among scientists and philosophers.

Typical is the definition of "mechanism" given in a recently published book on philosophy: "Mechanism is the theory that all phenomena can be reduced to the laws of matter in motion."<sup>1</sup> This definition confuses mechanism with materialism and materialism in general with mechanistic materialism. All materialists, including dialectical materialists, hold that everything that exists is an exemplification of the laws of motion of matter; but dialectical materialists are not mechanists. Mechanism is a particular, restrictive, metaphysical view about matter and its laws. The mechanist conceives the motion of matter exclusively as mechanical motion.

In its purest and simplest form, mechanism is a metaphysical speculation about the material world, which is conceived as

<sup>1</sup> Hector Hawton: *Philosophy for Pleasure*, p. 204.



consisting of discrete particles, distributed through space and interacting in time. The mechanist assumption is that each particle has certain definite properties, such as its position, mass, velocity, and so on; that the particles interact according to certain definite and eternal laws; that the motion of a particle never changes except as a result of the action of some outside force; and that everything that happens can be reduced to this type of interaction, i.e., to the mechanical interaction, of particles. All the changing qualities which we recognise in matter are, then, nothing but the appearances of the basic mechanical motion of matter.

The essence of mechanism is not that it reduces all phenomena to the laws of matter in motion, but that it reduces all the motion of matter to mechanical motion, i.e., to the simple change in place of particles as a result of the action on them of external forces.

So mechanism seeks to reduce the whole range of motion of matter to one form of motion. It teaches that whatever new may arise in the process of development can be new only in appearance, in reality it is but a continuation of the old. Development is reduced to repetition—to decrease or increase of the same kind of motion. Lenin contrasted the dialectical to the mechanistic conception when he wrote: "The two basic conceptions of development are: development as decrease and increase, as repetition, and development as a unity of opposites."<sup>1</sup>

More generally, the mechanistic approach shows itself as a theoretical method which seeks to reduce all happenings to the results of external action. It seeks to analyse every process into the sum of the movements of separate parts, acting externally one on another. It sees all processes as consisting of the interactions of a number of distinct and separate factors strictly external one to another, and whatever develops out of such a process as the resultant of such interactions. This is the essence of the mechanistic approach in biology, for example, and in historical and sociological studies.

And it follows that mechanism, which has elaborated the concept of a strict determinism governing the outcome of every process of interaction, also gives rise to the concept of a pure

<sup>1</sup> Lenin: *On Dialectics*.

spontaneity or chance. In so far as it is difficult to assign an external cause for certain happenings, they are written off as uncaused or spontaneous. Thus physicists talk of the spontaneity or "free will" of the electron, while biologists talk of the random occurrence of "mutant genes." The concept of indeterminism is as much an integral part of the mechanistic approach as is the opposite concept of determinism. For mechanism, change is either externally determined, or else it is spontaneous and undetermined.

From the point of view of dialectical materialism it is necessary to correct, in the first place, the mechanist conception of matter as "inert"—the idea that every motion of matter is the response to some external force.

This step was already being taken by the great materialist philosopher Diderot when he wrote:

"A body, according to some philosophers, is, in itself, without action and without force. This is a terrible error, contrary to all sound physics and to all sound chemistry; a body in itself, by the nature of its essential qualities, is full of action and of energy, whether one considers it molecule by molecule or whether one considers it in the mass.

"In order to represent motion to yourself, they add, you must not only conceive of existing matter, but also of a force acting upon it. That is not the case: the molecule endowed with a quality proper to its nature is in itself an active force. . . .

"Again, some say, in order that matter should be moved an action, a force, is necessary. Yes, a force either exterior to the molecule, or else inherent, essential, intimately a part of the molecule, constituting its nature. . . . Force which acts on the molecule exhausts itself; force which is a part of the molecule does not exhaust itself. It is immutable, eternal."<sup>1</sup>

In opposition to mechanism, which separates matter from motion, and regards matter as indifferent to motion and motion as something impressed on matter from outside, the dialectical method embraces the conception of the inseparability of matter and motion. It holds that motion is the mode of existence of matter, and refuses to separate matter from motion, or space and time from matter in motion.

In the second place, in opposition to the metaphysical,

<sup>1</sup> Diderot, *Philosophic Principles on Matter and Motion* (1770).

mechanist conception of the world as a complex of "ready-made things," each with its own fixed properties, and interacting with other things, the dialectical materialist method embraces the conception of the world as a complex of processes in which all things arise, have their existence, and pass away; it insists that everything must be studied in its movement and in its inseparable connection with other things.

And this involves, too, the conception of the inexhaustibility of the properties of matter. In Lenin's words: "The 'essence' of things, or 'substance' . . . expresses only the degree of profundity of man's knowledge of objects; and while yesterday the profundity of this knowledge did not go beyond the atom, and today does not go beyond the electron and the ether, dialectical materialism insists in the temporary, relative, approximate character of all these milestones in the knowledge of nature gained by the progressing science of man. The electron is as inexhaustible as the atom, nature is infinite. . . ." <sup>1</sup>

In the third place, in opposition to the mechanist conception of the reduction of all forms of movement of matter to a single, ultimate mechanical form of movement, the dialectical method embraces the conception of the range of forms of movement of matter, from simple change of place to the movement of thinking, the transformation of one form of movement into another and the derivation of one form of movement from another, bringing with it the emergence of new qualities of matter in motion—not as new appearances of the same basic mechanical movement of matter, but as the expression of differences in the form of motion.

The discoveries of modern science in their entirety bear out and vindicate this dialectical materialist criticism of mechanism. At the same time, the crisis of ideas in all fields of science is the expression of the failure of bourgeois scientists to rid themselves of mechanist preconceptions and to advance to the conceptions of materialist dialectics. As Engels put it:

"Modern natural science . . . has proved that in the last analysis nature's process is dialectical and not metaphysical. But the scientists who have learned to think dialectically are still few and far between, and hence the conflict between the

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 5, section 2.

discoveries made and the old traditional mode of thought is the explanation of the boundless confusion which now reigns in theoretical natural science and reduces both teachers and students, writers and readers to despair.”<sup>1</sup>

This confusion has become many times worse confounded since Engels wrote those words in 1878.

### 3. A REVOLUTION IN PHILOSOPHY

It is now possible to indicate in what way the discovery of the materialist dialectical method by Marx and Engels constituted a revolution in philosophy and opened up a new path of scientific development of philosophy.

The main thing is that the ideas of dialectical materialism constitute a revolution in philosophy because they introduce into philosophy the outlook of a new class, namely, the class outlook of the modern proletariat, in its struggle to do away with capitalism and build communist society; and because this class is unlike all other classes which historically have aspired to take the leadership of society, or have assumed that leadership, in that its aim is not to replace one form of class exploitation by another, but to abolish all exploitation of man by man, and to abolish the division of society into classes.

It is precisely because it is the militant philosophy of the working class struggle that dialectical materialism opens up the new path of scientific development of philosophy.

#### *The Class Nature of Philosophy*

Philosophy has always expressed and could not but express a class standpoint. Every philosophy has been a formulation of the world view of a class, a way in which a class has become conscious of its own position and of its historical aims. The philosophical schools have expressed the world view of the privileged class, or of a class which was striving to become the privileged class.

This does not mean that philosophies have not expressed the striving for knowledge, for mastery over nature, and for man's conscious understanding and control of his own destiny. On the contrary, it is just this which the great philosophies have

<sup>1</sup> Engels: *Anti-Duhring*, Introduction.

expressed—otherwise we would not call them great. But they have expressed it in the way that it appears in the consciousness of some definite class.

Exploiting classes, even at times when they have been playing a progressive social role, from the very nature of their existence could never face up to the reality of their own system of exploitation, or of their true aims, or of the transitory character of the part they play in history. Instead, they have developed in their world outlook a “false consciousness”—a disguised reflection of their own social position and aims, and a philosophy which presents their own provisional and historically conditioned ways of looking at things as eternal truths. Such has been the character of the schools of philosophy of the past, even the most progressive.

But this conception of the class nature of all philosophy has been alien to the thought of the philosophers. They have thought of themselves as motivated simply by the desire to discover the truth, without realising the social and ultimately economic causes which motivate their version of that truth.

“Ideology is a process accomplished by the so-called thinker consciously indeed but with a false consciousness,” wrote Engels. “The real motives impelling him remain unknown to him, otherwise it would not be an ideological process. Hence he imagines false or apparent motives. Because it is a process of thought, he derives both its form and its content from pure thought, either his own or that of his predecessors. He works with mere thought material which he accepts without examination as the product of thought; he does not investigate further for a more remote process independent of thought; indeed, its origin seems obvious to him, because, as all action is produced through the medium of thought, it also appears to him to be ultimately based on thought.”<sup>1</sup>

What the philosophers have overlooked is the simple fact that men have always interpreted nature, and have always philosophised, on the basis of the actual conditions of their material life. To live men have to produce their means of life, and the social relations, the relations of production, into which they enter in getting their living have determined the way they think. The categories derived—not from pure thought, nor

<sup>1</sup> Engels: *Letter to F. Mehring*, July 14, 1893.

yet directly from contemplation of the external world, but—from the social relations of production, have been projected into nature and used to interpret the whole world.

This is clearly exemplified, for instance, in the most primitive societies we know—in totemic tribes. Thus G. Thomson writes, in a recent study of totemism:

“In Australia the ideology of totemism has been expanded into a comprehensive theory of the natural world. Just as the social organism consists of so many clans and groups of clans, each with its own totem species, so the world of nature—the sea, streams, hills, heavenly bodies, and all that dwell therein—are classified on the totemic model. The various kinds of trees are grouped with the kinds of birds that nest in them; water is assigned to the same group as waterfowl and fish. The world of nature is reduced to order by projecting on to it the organisation imposed by nature on society. The world order is a reflection of the social order—a reflection which, owing to man’s weakness in the face of nature, is still simple and direct.”<sup>1</sup>

It is a very far cry from this ideology of totemism, which belonged to a pre-class society which knew neither philosophy nor science, to the ideas of philosophers and scientists, and in particular to the ideology of modern bourgeois society. Here the reflection is neither direct nor simple. Nevertheless there is a process of continuous development—though not without its leaps and transformations—from the one to the other. The law that men’s social existence determines their consciousness has continued to operate.

Of course, to demonstrate the operation of this law requires a complete, detailed historical study—a truly gigantic task, for which Marxism provides the intellectual tools, but which Marxists are yet far from having accomplished. Similarly, to demonstrate it in any particular case requires a complete historical study of that particular case. I could not begin such a demonstration here, even were I properly equipped to do so. I am compelled to confine myself to a few general observations, relevant to the understanding of the class nature of philosophy and of the character of the revolution in philosophy effected by Marxism.

Marx and Engels, who stressed again and again that the way

<sup>1</sup> George Thomson: *Studies in Ancient Greek Society*, Vol. I, p. 40.

men think is dependent on their relations of production, the economic basis of their social life, also stressed again and again that the reflection of the economic organisation of society in the ideas of that society, and particularly in its abstract philosophy and science, was by no means a simple, direct or automatic process.

"Our conception of history is above all a guide to study, not a lever for construction. . . ." wrote Engels. "All history must be studied afresh, the conditions of existence of the different formations of society must be individually examined before the attempt is made to deduce from them the political, civil-legal, æsthetic, philosophic, religious, etc., notions corresponding to them."<sup>1</sup>

Again: "The further the particular sphere which we are investigating is removed from the economic sphere and approaches that of pure abstract ideology, the more shall we find it exhibiting accidents in its development, the more will its curve run into a zig-zag. But if you plot the average axis of the curve, you will find that the axis of this curve will approach more and more nearly parallel to the axis of the curve of economic development the longer the period considered and the wider the field dealt with."<sup>2</sup>

If, then, one considers the ideas of the philosophers, and in particular, the ideas of the bourgeois philosophers, from this point of view, it is necessary to stress, in the first place, that the reflection of the economic basis in the philosophical ideology cannot be simple or direct; but to stress, in the second place, that this ideology does in the last analysis reflect the economic basis.

### *Philosophers as the Products of their Times*

Philosophy, of course, is an instance of the social division of labour. Out of the general division of intellectual and manual labour emerge various divisions of specialised thinkers, amongst them the individuals with an urge to philosophy. Thus the production of philosophy is a very different process from the production of myths and primitive ways of thinking, mentioned above in the case of the general ideology of totemism.

<sup>1</sup> Engels: *Letter to C. Schmidt*, Aug. 5, 1890.

<sup>2</sup> Engels: *Letter to H. Starkenberg*, Jan. 25, 1894.

Philosophy is the work of individual philosophers—highly specialised people, highly gifted people and intensely individual people. And the reflection of the economic basis takes place through the medium of their individual, personal thought.

It will be found, however, that in every epoch the ways of thinking characteristic of the philosophers do reflect the character of the economic development and production relations of that epoch. With all their intellectual labour after truth the philosophers cannot free themselves from the actual material circumstances under which they live.

For example, Marx and Engels wrote that “the bourgeoisie, wherever it has got the upper hand, has put an end to all feudal, patriarchal, idyllic relations. It has pitilessly torn asunder the motley feudal ties that bound man to his ‘natural superiors,’ and has left no other nexus between man and man than naked self-interest, than callous ‘cash payment.’”<sup>1</sup>

It is impossible not to recognise the reflection of this state of affairs in bourgeois philosophy from its very inception—and not merely the acceptance of this state of affairs and the assertion of ideas corresponding to it in opposition to feudal ideas, but also the recognition of the problems that arise from it and the attempt to grapple with and solve those problems.

And this reflection is to be found not only in the realm of social philosophy. For example, it was typical of the natural philosophy or physics of the feudal period that insistence was continually laid on final causes. Everything was regarded as having its proper place in the universe and its end which it subserved. Thus bodies were said to fall because that was their proper motion. The earth was in the centre, and the proper place of earthy bodies was in the centre, towards which they naturally tended. The natural motion of fire, on the other hand, was upwards. And just as the bourgeoisie in its economic activity set about destroying the feudal relations which were reflected in these feudal ideas (and that reflection, too, by the way, was complicated and indirect: the feudal ideologists proceeded by adapting much earlier Greek ideas, and in particular the philosophy of Aristotle, for their own purposes); so the bourgeois philosophers and scientists proceeded by destroying—and they did so quite consciously—these feudal ideas.

<sup>1</sup> Marx and Engels: *Manifesto of the Communist Party*, ch. I.



By doing so they made a mighty advance in science and philosophy, a truly revolutionary advance, just as capitalism was a revolutionary advance on feudalism. But their own outlook was by no means a product of pure thought or of pure intellectual criticism, but was itself determined, formed and bounded by the new social relations within which the philosophers were confined.

### *The Movement of Ideas*

Here, however, it is again necessary to stress the indirectness of the reflection of social relations in philosophical ideas, in as much as those ideas always take shape out of a process of the criticism and assimilation by the individual philosophers of already existing ideas.

The philosophers must always take as their starting point the ideas which they receive from their predecessors. Partly they develop their ideas in struggle against the past ideas: their own ideas are formed in contradiction to those of their predecessors. Partly they take over past ideas and work them up in their own ways. But in any case, what they have to say is always conditioned by what others have said before them. In other words, no idea is ever simply a direct response to the needs of the present, but meets the needs of the present only with the help of the heritage of the past.

In the 17th century, for example, men of letters engaged in a conscious struggle against various dogmas of the past. At the same time, past ideas were revived and given new life by them. For instance, they contradicted the version of Aristotle's philosophy taught by the scholastics and at the same time there was a revival of the ancient atomistic system of Democritus and Epicurus, whose concepts were borrowed and transformed. And even when they contradicted the scholastic philosophy, in many respects they still continued it. Thus the leading ideas of science and philosophy in the 17th century were no direct reflection of new social conditions; the ideas which reflected these social conditions took their shape partly in struggle against and partly by revival, assimilation and transformation of the ideas of the past.

Engels writes of ideologists in general:

“In so far as they form an independent group within the social division of labour, in so far do their productions, including their errors, react back as an influence upon the whole development of society, even on its economic development. But all the same, they themselves remain under the dominating influence of economic development. . . . I consider the ultimate supremacy of economic development established . . . but it comes to pass within conditions imposed by the particular sphere itself: in philosophy, for instance, through the operation of economic influences (which again generally only act under political etc. disguises) upon the existing philosophic material handed down by predecessors. Here economy creates nothing absolutely new, but it determines the way in which the existing material of thought is altered and further developed, and that, too, for the most part indirectly, for it is the political, legal and moral reflexes which exercise the greatest direct influence upon philosophy.”<sup>1</sup>

Here Engels makes a further point of great importance, namely, that the economic development determines philosophical ideas mainly via the political, legal and moral development which takes place on the basis of the economic development.

### *Science, Technology and Philosophy*

Another point to note is the influence of technical inventions and scientific discoveries in the working out of philosophical ideas.

Here again, as Engels stated, “the ultimate supremacy of economic development” is manifest. The level of technique on which the economy is based largely determines the corresponding level of natural science. At the same time, it sets problems for science, and the success with which science tackles these problems becomes a lever for further technical development. There is a reciprocal influence of science and technology. Technological problems stimulate scientific discovery, which in turn leads to fresh technological development, which again provides the stimulus and means to fresh scientific discovery.

In this process, inventions and discoveries are themselves a

<sup>1</sup> Engels: *Letter to C. Schmidt*, Oct. 27, 1890.

material, revolutionary force operating to change society. And they serve as a lever for the overthrow of past, illusory conceptions of nature and their replacement by fresh, more true, more adequate ideas. Thus Engels wrote that "the history of science is the history of the gradual clearing away of . . . nonsense." But he immediately added: "or of its replacement by fresh but already less absurd nonsense."<sup>1</sup>

Technological developments and the scientific discoveries associated with them have a necessary influence on the course of philosophical theory. In working out their systems, philosophers have had to take current techniques and discoveries into account. No philosophy can be acceptable unless its ideas are developed in relation to current techniques and discoveries, and so philosophical ideas are always influenced by these techniques and discoveries, draw conclusions from them and seek to give some interpretation of them.

For example, as Benjamin Farrington has observed in his study of Greek science,<sup>2</sup> the speculations of the earliest Greek natural philosophers were closely associated with the techniques of the age. Their ideas of the transformations which a single substance could undergo, of the elements and of the diverse results which could accrue from the mixing and interaction of the elements, and so on, were evidently influenced by current techniques, such as metal working and pottery, and by the scientific knowledge associated with such techniques. Again, the speculations of the Pythagorean school made wide use of images drawn from the techniques of the manufacture and use of musical instruments.

In modern philosophy, the influence of the development of machine technique is manifest in the mechanistic conceptions of nature which were held by all philosophers of all schools right up to towards the close of the 17th century. A machine is an arrangement of independent and movable parts, which can be set in motion by an external motive force and then goes on working according to its own laws. And this provided the model for the entire conception of nature. The older conceptions of mechanism began to be modified and to break up

<sup>1</sup> Engels: *Letter to C. Schmidt*, Oct. 27, 1890.

<sup>2</sup> Benjamin Farrington: *Greek Science, Thales to Aristotle*.

with the newer techniques of the industrial revolution—the internal combustion engine, chemical techniques and then electronics.

At the same time, while the development of technology and of science is reflected in the development of philosophy, it would be entirely wrong to conclude that this constitutes the basis on which philosophical ideas develop. Techniques are invented and scientific discoveries made by men organised in a definite system of production relations in which certain classes play the leading role. And the way in which techniques and science are reflected in philosophical theory is determined accordingly by the nature of the economic structure of society in the given period.

Philosophy constitutes part of the ideological superstructure of society which develops on the basis of the given economic structure. And as Stalin observed, "The superstructure is not directly connected with production, with man's productive activity. It is connected with production only indirectly, through the economy, through the basis. The superstructure therefore reflects changes in the level of the development of the productive forces not immediately and not directly, but only after changes in the basis, through the prism of the changes wrought in the basis by the changes in production."<sup>1</sup>

In so far as techniques and discoveries are reflected in philosophy, they are reflected through this "prism." It is the economic structure which is the true basis of philosophical ideas, which thus provide a commentary on or interpretation of technology and science corresponding to the nature of the existing economic structure of society and the requirements and interests of the corresponding classes. Consequently the inventions and discoveries which advance and enlarge men's mastery over and knowledge of nature are interpreted in terms of philosophical theories which, in the last analysis, are based on the economic structure of society in the given period and serve the aims of definite classes.

Originally there was little or no distinction between natural science and philosophy. A feature of the development of science, especially in the bourgeois epoch, has been that the various sciences have separated themselves from philosophy and

<sup>1</sup> Stalin: *Concerning Marxism in Linguistics*.

carried on with their own experimental methods of investigation. Thus the field of independent philosophical investigation has continually narrowed.

This has meant, however, that the influence of the sciences in the development of philosophy has simultaneously become more pronounced. But at the same time the very scientists who think that they have emancipated themselves from the swaddling clothes of philosophy are still thoroughly enmeshed in the principles and systems which have been formulated for them by the philosophers.

The philosophers have had the task—and some of them, indeed, have been largely conscious that this was their task—of so interpreting technical progress and scientific discovery as to bring it into harmony with the moral and political ideas and social aspirations which were being developed out of the economic movement of their time.

And in fulfilling this task, philosophers have claimed not only to interpret scientific discovery but to go far beyond the natural sciences. They have claimed to reveal the ultimate nature of the reality which science deals with, and to reveal the nature of spiritual reality inaccessible to the methods of science—the nature of God and of the human soul, and the moral springs of individual action and social development.

### *The National Development of Science and Philosophy*

A last point to note—and it is one of considerable importance—is that, so far as the bourgeois epoch is concerned, the development of both science and philosophy is essentially *national*.

The growth of the bourgeois mode of production and exchange gave rise to the modern European nations. Capitalism develops through a process of uneven national development. And the scientific and philosophical conceptions also manifest a national development.

Hence it must always be a false abstraction and oversimplification to seek to deduce the development of bourgeois philosophy from the development of capitalism in general. Its development follows a national path. And the national development of philosophy reflects the entire complex of the

economic development, together with its political, legal and moral superstructure, and with the traditions and national-cultural characteristics of the given nation. Thus philosophy has developed differently in Britain from in France, and differently again in Germany. British empiricism, French rationalism and mechanical materialism, German idealism, were all national developments whose peculiarities can only be understood, not by considering the development of bourgeois society in general, but by taking into consideration its national development in those particular countries.

The streams of national development of philosophy are not, of course, independent, any more than the history of one nation is independent of the history of another. They are continually meeting and exchanging influences. The reciprocal interaction of English, French and German philosophy, mentioned above, in fact follows fairly closely the course of historical development of the bourgeois revolution in those countries. In the 19th century the creation of the world market and the birth of imperialism in the 20th century have had further profound influences on the national course of bourgeois philosophy, tending to de-nationalise it and give it a cosmopolitan character. This tendency corresponds, as a matter of fact, to the period of the decline and disintegration of bourgeois philosophy. The general thesis that bourgeois philosophy in its development follows a national course remains valid. An elementary exemplification of the national character of bourgeois philosophy is the fact that the philosophers wrote in a number of different languages, whereas in the Middle Ages they all wrote in Latin.

A rash conclusion which might be drawn from these considerations is that the philosophy of the economically most advanced country ought to be the most advanced philosophy. This is very far from being the case—and the inference that it ought to be the case follows only from a very simple-minded idea of the way philosophy reflects economic development. The philosophers of economically backward France in the 18th century were able to draw on both the rich heritage of Cartesianism and of British empiricism, and elaborate it in their own way in the conditions of the maturing French Revolution. Then the German philosophers had all this to draw on in the conditions of the late development of the

national bourgeoisie in Germany. The result was that the spearhead of advance of bourgeois philosophy in the late 18th and early 19th centuries was located in economically backward France and Germany. Thus Engels wrote:

"The philosophy of every epoch . . . has as its pre-supposition certain definite intellectual material handed down to it by its predecessors, from which it takes its start. And that is why economically backward countries can still play first fiddle in philosophy: France in the 18th century compared with England, on whose philosophy the French based themselves, and later Germany in comparison with both. But the philosophy both of France and Germany and the general blossoming of literature at that time were also the result of a rising economic development."<sup>1</sup>

In general, then, it may be stated that philosophical conceptions have always in the last analysis reflected the economic development of society and therefore the standpoint of definite classes which have been the principal protagonists in that economic development; but this reflection is a complicated and indirect process—mediated by the personalities of the philosophers; by the pre-existing ideas which they have received from their predecessors; by the entire complex of the political, legal and moral development of society; by the progress of technical invention and scientific discovery; and, in the bourgeois epoch, by the peculiarities of national development in the various countries.

*Marxism as the Revolutionary Philosophy  
of the Working Class*

The revolution in philosophy which was effected in the mid-19th century by Marx and Engels—which constituted the emergence of a new type of philosophy, radically different from everything that had preceded it, and from the entire contemporary bourgeois philosophy and the entire bourgeois philosophy which continued after it—had its basis in definite economic facts.

It had its basis in the fact that the development of capitalism generates the working class movement and, with it, the struggle

<sup>1</sup> Engels: *Letter to C. Schmidt*, Oct. 27, 1890.

of the working class against capitalism, which can end only with the expropriation of the capitalists.

Marx and Engels gave the nascent working class revolutionary movement its theory. This theory was not simply an economic theory, nor yet a political theory, but a revolutionary philosophy, which for the first time consciously based itself on revolutionary practice. It took as its premisses the highest achievements of the preceding bourgeois thought, and at the same time it developed by the revolutionary criticism of bourgeois ideology in all its aspects.

The great philosophical discovery of Marx and Engels, by virtue of which they were able not only to continue but to transform the best ideas of previous philosophy, and which was at once their weapon of criticism and their method of investigation, was the materialist dialectical method.

The discovery of this method, prepared by the entire preceding course of philosophy, was made possible precisely by the circumstance that at that time the working class revolutionary movement was arising, generating a consciousness of a social aim corresponding to a real aim—namely, to change society, not in the interests of some new exploiting class, but in the interests of the masses of the people; to conquer political power for the people and build socialist society. It was precisely because of this movement and of this aim that it became possible for the first time to generalise in a rational, scientific form the basic laws of change and development of the objective world of nature and society. And by their philosophical discovery, and their entire doctrine, Marx and Engels were able to arm the working class movement with the revolutionary theory which the achievement of its historical aim required.

The point is that the modern working class, unlike other classes which have played a leading historical role, does not aim at establishing its own system of class exploitation, but at abolishing all exploitation of man by man. Its aim is not to subjugate the rest of society, but to liberate the whole of society—for this is the aim that corresponds to its class interests.

This means that the standpoint of the working class, which receives its philosophical expression in Marxism, has no need for any ideological disguise of social aims, of human relationships and of the relationship of man and nature. On the



contrary, it demands the effort to study and understand the processes of nature and history *as they are*, without weaving any fantasy around them, in order as effectively as possible to guide the struggle for the liberation of mankind from oppression and the building of a classless society, and for the extension of man's dominion over nature.

This is why it was only in our times that it became possible to begin to establish a truly scientific philosophy; for the material basis for the development of a new scientific standpoint of philosophy had come into being with the birth of the modern working class movement. This, too, is why such a philosophy was not, and could not be, developed as the narrow, academic philosophy of a school, but was first conceived and has since been developed as the militant philosophy of the working class struggle.

This is also why dialectical materialism, as the class philosophy of the proletariat, provides the essential basis for the future development of philosophy in the classless communist society which it is the aim of the revolutionary working class struggle to establish.

#### 4. DIALECTICAL MATERIALISM AND SCIENCE

Dialectical materialism is the philosophy which expresses the standpoint and meets the needs of the working class. But the reason for asserting that dialectical materialism is true is not that it suits the working class to have it so. It expresses the standpoint and meets the needs of the working class by investigating the real laws of motion of nature and of society in the light of the facts themselves, without pre-conceived fantasies, in order to show how the world can be changed. It is true because it passes the test of practice and experience. It is precisely the standpoint of the working class which for the first time provides the basis for such a philosophy.

It is a standpoint which requires no kind of ideological disguise or deception, either concerning nature or concerning human relationships. If such ideas arise, based on any particular phase of the social movement, then this standpoint demands that they shall be criticised and corrected.

This point is most vividly expressed by the fact that the

working class is the one class which is able to recognise the necessity of its own disappearance as a class. Indeed, it not only recognises the necessity of its own disappearance as a class, but strives to hasten that disappearance. Its class aim is to establish communist society, in which classes cease to exist. When the working class has gained power, its aim is to build communist society, in which not only will its own existence as a class come to an end, but also its party and its state come to an end.

“When a man becomes old, he dies. The same thing happens to parties. When classes disappear, the instrument of class struggles—political parties and the state apparatus—will, as a result, lose their functions, cease to be necessary, gradually disappear and, having completed their historical mission, give way to a higher stage of human society. . . . Young comrades who have not yet studied the foundations of Marxism-Leninism probably do not understand this truth. But they must understand it if they are to develop a truly world outlook.”<sup>1</sup>

The working class standpoint, therefore, requires absolutely no sort of philosophical system, no sort of philosophical principles, which justify things as they are. It requires ideas which faithfully reflect the real motion and change—the coming into being, development and ceasing to be—of everything in the world. And it has generated the principles and methods for the elaboration of such ideas.

All this makes dialectical materialism scientific philosophy. What, then, are its specific features in relation to the natural and social sciences?

### *The Scientific Basis of Dialectical Materialism*

(1) In the first place, the ideas of materialist dialectics—the dialectical conception of the processes which make up the material world and its history—are not any system of abstract first principles, are no speculative philosophical deduction. It is the discoveries of science, the whole experience of the scientific investigation of the processes of the world, that has furnished the materials from which the conceptions of dialectics are generalised. Nature is the test of dialectics, which is firmly

<sup>1</sup> Mao Tse-tung: *People's Democratic Dictatorship*.

based in the discoveries of the sciences and is continually confirmed and enriched by those discoveries. Dialectical materialism is a method and a conception of the world which finds its test and confirmation in the achievements of the sciences, which bases itself on those achievements and generalises them, which develops the conception of their full significance for humanity, and which at the same time shows how to carry those achievements forward and to rid science of pre-conceived ideas which impede its progress.

Hence in dialectical materialism there begins an entirely new stage of the development of philosophy as a science. Philosophy no longer seeks to invent a universal system of the world, or to interpret the discoveries of science in the light of first principles which are arrived at independently of scientific investigation. The task of philosophy is, basing itself on the achievements of science, to show how "the facts are to be conceived in their own and not in a fantastic connection." And this means that there opens up the path of development of an absolutely consistent philosophical materialism.

Philosophy has always advanced through the struggle of materialist with idealist trends. But hitherto even the most consistently materialist philosophy had borne a metaphysical character, and had never been free from the elements of idealism. The materialists sought to comprehend everything in terms of rigid, mechanistic ideas, which were, however, quite inadequate for the comprehension of real processes of development, and, in particular, of the development of human consciousness and of history. The discovery of Marx and Engels meant the overcoming of the limitations of previous materialist thought and, with it, the removal of all need for appeal to idealist fancies.

### *Dialectics as an Instrument for the Advance of Science*

(2) In the second place, the ideas of materialist dialectics are an instrument for the further advance of science.

Natural science has emancipated itself from the systems of philosophy in as much as it has embarked upon its own experimental investigation irrespective of the demands of this or that system. At the same time, scientific thought has always been penetrated with philosophical preconceptions, which

continually find expression in the theories with which scientists endeavour to summarise and interpret their results. These preconceptions have been not the less but rather the more influential when they have been latent and unconscious. As Engels pointed out, the materials of the sciences prove the truth of dialectics; but scientists have seldom been able to think dialectically.

The dialectical materialist method is a weapon of criticism of idealist and metaphysical ideas which penetrate the sciences, ridding the sciences of the incubus of such ways of thinking. It is a weapon of criticism of limiting and formalistic theories in the sciences, which seek merely to formulate sets of laws accounting for the observed correlations amongst given experimental data, but which do not analyse the dialectic of the real material processes expressed in those data, and so raise a barrier to the more profound investigation of those processes.

In opposition to metaphysical and idealist attitudes in the sciences, the typical products of bourgeois science, dialectical materialism shows how to investigate, comprehend and explain real processes by the method of studying things in their dialectical interconnection and in their movement, by seeking out the laws of transformation of quantitative into qualitative change through the struggle of opposed tendencies operating on the basis of the internal contradictions inherent in every process. The goal of science becomes, not the disclosure of the ultimate elements of nature, but deeper penetration into her laws so as to advance man's mastery over nature.

This makes of the dialectical materialist method, on the one hand a weapon of criticism, on the other hand an instrument for advancing and unifying scientific theory and developing the strategy of the further progress of scientific knowledge.

Particularly important was the contribution which dialectical materialist philosophy made, in the hands of Marx and Engels themselves, to the scientific understanding of society and of history.

Hegel first began to formulate the principles of dialectical thinking; but his approach was idealist. For him dialectics was not the method to be adopted by scientific thought in order to comprehend the laws of motion of the real world, but it was

a procedure inherent in thought itself—and he elevated thought into an absolute, the first cause of everything in the world.

The dialectic was, according to Hegel, manifested in the process of human history, every stage of which he imagined as embodying some “moment” of the dialectical movement of Spirit. History was Spirit realising itself in the world. But as for the material world, the arena in which history took place, it was simply the “other” of Spirit. Dialectical development, according to Hegel, did not belong to nature, and nature had no history.

In this respect Hegel's philosophy remained fixed in the same dualism which is inherent in all idealist philosophy—the invention of a rigid, absolute distinction between matter and spirit, nature and history.

Thus, for example, Hegel wrote: “The changes that take place in nature, how infinitely manifold soever they may be—exhibit only a perpetually repeating cycle; in nature there happens ‘nothing new under the sun’ . . . only in those changes which take place in the region of Spirit does anything new arise. This peculiarity in the world of mind has indicated in the case of man an altogether different destiny from that of merely natural objects—in which we find always one and the same stable character, to which all change reverts; namely, a real capacity for change, and that for the better—an impulse of perfectibility.”<sup>1</sup>

Marx and Engels, rejecting Hegelian idealism, were able to apply the discoveries of dialectical materialism in founding the science of society and history, historical materialism. Life is to be regarded as the mode of existence of matter at a certain stage of its development; society and history begin when the new species of animal, man, with his unique development of hands and brain, begins to use tools to produce his own means of subsistence; men thus create their own forces of social production, whose development is the primary determining factor of the movement of society and history.

Dialectical materialism sees the whole world as one historical process, in which men and human society come into existence at a definite stage of development. The same universal laws of dialectical development are at work in nature and in society.

<sup>1</sup> Hegel: *Philosophy of History*, translated by J. Sibree, p. 54.

It thus shows the way to discover the particular character of the laws of development of human society and of each particular stage of the development of human society, which Marx traced from their origin in the mode of social production.

Recognising the dialectical character of the development of the world, Marx did not try to explain human society in terms of physical or biological laws; nor did he treat it as something divorced from the natural world, not amenable to methods of scientific investigation; but he understood human society as a new development in the history of the world and applied the method of dialectics to the study of its specific laws of motion.

This demonstration of the continuity of nature and society, which manifests itself in the discontinuity of the dialectical leap from one qualitative state to another, was a contribution of revolutionary significance to the unity of science, to the scientific understanding of the material world and of man and his place in it.

### *The Development of Materialist Dialectics*

‘(3) In the third place, the ideas of materialist dialectics, which are generalised from the experience of scientific investigation, and which serve as an instrument for the further advance of science, are themselves to be developed in the light of the fresh discoveries achieved by science and in application to the new problems presented by the movement of society.

Thus A. A. Zhdanov wrote: “Marxist philosophy, as distinguished from preceding philosophical systems, is not a science dominating the other sciences; rather it is an instrument of scientific investigation, a method, penetrating all natural and social sciences, and enriching itself with their attainments in the course of their development.”<sup>1</sup>

Dialectical materialism, as cannot be too often emphasised, is not a finished philosophical system, a set of ideas complete and rounded off. Nature is the test of dialectics. The methods of dialectics are applied in the scientific investigation of nature and the materials of science continually furnish fresh proof that nature’s process is dialectical. But the discoveries of science do not merely exemplify the laws of dialectics. For the new exemplifications of the laws of dialectics continually add to our

<sup>1</sup> A. A. Zhdanov: *On the History of Philosophy*.

understanding of the modes of operation of those laws, and so need to be made the basis for fresh philosophical generalisation, enriching and extending the content of the conceptions of materialist dialectics.

In his writings on materialist dialectics, Mao Tse-tung emphasised that the central conception of dialectics was that of contradiction. And he distinguished between "the universality of contradiction" and "the particularity of contradiction."<sup>1</sup> Whatever aspect or process of nature or society we may be considering, it contains within itself contradictory features, contradictory movements, the contradiction of one side against another side; and such contradictions are the basis and driving force of all change and motion. This is the universality of contradiction. But each process in nature or society is a particular process, with its own particular characteristics which differ from those of other processes. Hence the contradictions within each process take particular forms and operate in a particular way. This is the particularity of contradiction.

Merely to speak about "contradiction" contributes, therefore, very little towards the understanding of the laws of any particular process. For that it is necessary to study concretely the particular process. Each kind of process has its own dialectic, which can be grasped only by the detailed study of the particular process. The dialectic of the sub-atomic world is not the same as that of the bodies directly perceptible to our senses; the dialectic of living processes is not the same as that of the processes of inorganic matter; the dialectic of human society is again a new law of motion, and each phase of human society brings with it its own particular dialectic.

It is evident, therefore, that every time something new comes into being or something new is discovered, there comes into being or is discovered something new in the laws of dialectics.

For example, in human society there is always a contradiction between the new and the old. This is the universal form of contradiction in all human society. In each phase of society hitherto this has taken the particular form of a particular

<sup>1</sup> Mao Tse-tung: *On Contradiction*.

contradiction between the forces of production and the relations of production—in capitalist society, the particular contradiction between the social character of production and private appropriation. In societies based on exploitation and divided into antagonistic classes, the particular contradiction has worked itself out and been resolved through particular forms of class struggle, that is to say, in antagonistic and more or less violent ways. But what happens in socialist society? In socialist society the contradiction takes new forms and, in the absence of exploitation and antagonistic classes, is worked out in an entirely new way. “In our Soviet society, where antagonistic classes have been liquidated, the struggle between the old and the new, and consequently the form of development from lower to higher, proceeds not in the form of struggle between antagonistic classes and of cataclysms, as is the case under capitalism, but in the form of criticism and self-criticism, which is the real motive force of our development. This is, without a doubt, a new form of movement, a new type of development, a new dialectical law.”<sup>1</sup> This, then, is one example of how the conception of the laws of dialectics is extended and enriched by application to new problems.

#### 5. THE DIALECTICAL MATERIALIST THEORY OF KNOWLEDGE

Very important is the application of the dialectical materialist method in the theory of knowledge, and in the criticism of the various conceptions of bourgeois philosophy concerning the foundations of knowledge and its scope and limits.

#### *The Theory of Knowledge of Bourgeois Philosophy*

Two contrasted types of view concerning the foundations of knowledge are to be found in bourgeois philosophy. On the one hand are views which stress the importance of “innate ideas,” intuitions of “eternal truths,” self-evident “synthetic propositions,” a-priori “first principles,” as the basis of knowledge. On the other hand are the various empiricist views, which say that all knowledge is founded on individual sense-perceptions. Many and prolonged have been the polemics between upholders of various forms of these contrasted views

<sup>1</sup> A. A. Zhdanov: *On the History of Philosophy*.



on knowledge, which constitute two opposed sides or facets of the theory of knowledge of bourgeois philosophy.

Both have it in common that they treat knowledge abstractly, apart from the actual process of the evolution of knowledge in human society. They do not investigate how knowledge has actually been won by socially organised mankind. Instead, they try to consider how a system of knowledge can ideally be founded on some set of indubitable premisses, whether these be innate general ideas or particular sense presentations. In either case they regard knowledge as arising from some kind of individual contemplation, not from social activity.

And both have it in common that their theory of knowledge is fundamentally idealist. By idealism is meant that approach in philosophy which treats spirit as prior to nature. In what ways, then, are these contrasted theories of knowledge idealist?

They are idealist, in the first place, in their treatment of the foundations of knowledge. For both see the foundation and starting point of knowledge in something arising within the mind, whether this be individual sensations or general ideas or both.

They agree in this idealist approach, even though the empiricists say that sensations come first and that general ideas are only in some way "copies" of sensations, whereas the others say that sensations are merely the "raw material" of knowledge, which is "worked up" by the mind with the help of its own innate apparatus of a-priori categories.

True, many materialists have explained that the sensations, which they recognise as the starting point of cognition, are produced in the mind by the action of external material objects on the sense-organs. Nevertheless, they still considered that the whole edifice of knowledge must be somehow deduced from the data of sensation, since they still failed to recognise the dependence of all knowledge on social practice.

In this respect even materialists, notably some of the great French materialists of the 18th century, adopted an idealist standpoint in the theory of knowledge. Their remarks about the action of the material world in producing sensations in the human mind were introduced only as a kind of preface to their theory of knowledge, not as an integral part of it; and afterwards they had to try to deduce the existence of the material

world from the data of sense-perception. Helvetius, for example, who in one place says that all our cognitions are produced by the action of material objects on our sense-organs, in another place says that the external material world is merely a hypothesis which we make to account for our sensations, and that perhaps no such world exists.

In the second place, both contrasted theories of knowledge lead to idealist conclusions about the known world.

Those who postulate innate ideas and intuitions come to the conclusion that the world is revealed to true knowledge as in essence spiritual, and that spiritual causes underly all material phenomena.

Many empiricists, on the other hand, who deride all this as misty speculation, reach a conclusion which is equally idealist, namely, that nothing is indubitably known to exist except the sensations in our own minds. Such subjective idealists variously regard the material world either as itself consisting of complexes of sensations, or as a shadowy realm of things-in-themselves, or as a convenient but rather dubious hypothesis, or else as a complete delusion and a product of metaphysical speculation.

### *The Theory of Knowledge of Dialectical Materialism*

Whereas both contrasted types of the bourgeois theory of knowledge see the starting point of knowledge in sensations or ideas, abstracting these aspects of individual experience from the real material process of human activity in which they arise, dialectical materialism studies knowledge as it actually arises and develops on the basis of men's material social existence, of their interaction with one another and with nature.

The dialectical materialist theory of knowledge breaks with the abstract treatment of knowledge characteristic of bourgeois philosophy, and with its idealist methods, assumptions and conclusions. As Lenin said, it "regards its subject matter historically, studying and generalising the origin and development of knowledge, the transition from *non-knowledge* to knowledge."<sup>1</sup>

The last phrase is of importance here—the transition from *non-knowledge*, or ignorance, to knowledge.

<sup>1</sup> Lenin: *Karl Marx*.

That the winning of knowledge is a transition from ignorance to knowledge, may seem a mere truism. But if so, it is one which has never been recognised in bourgeois philosophy. For the theory of knowledge of bourgeois philosophy has been unable to understand precisely this transition.

It has always assumed that knowledge comes only from previous knowledge: hence the real origin of knowledge has been a mystery to it. It has assumed, namely, that knowledge must be founded, either on knowledge (immediate acquaintance in sense-presentation) of sense qualities, or on knowledge (innate ideas) of general principles, or perhaps on both. In any case, knowledge always comes from previous knowledge and not from previous ignorance. The bourgeois philosophers have all sought to show how the whole of knowledge is founded on some special sort of immediate or intuitive knowledge, not how knowledge itself arises and develops.

But on the contrary, it is out of the transformation of a previous state of *non*-knowledge that there comes the winning of knowledge.

How is this transformation effected? It is effected by human social activity.

Dialectical materialism grasps the scientific truth that knowledge arises, develops and is tested in social practice. That was its key discovery in the sphere of the theory of knowledge.

In the light of this discovery, dialectical materialism is able to answer questions about knowledge which have been argued back and forth by bourgeois philosophy for a very long time, and to embark upon important generalisations concerning the nature and scope of our knowledge.

Generalising from the actual historical development of knowledge, dialectical materialism teaches that, at every stage and in all circumstances, knowledge is incomplete and provisional, conditioned and limited by the historical circumstances under which it was built up, including the means and methods employed for gaining knowledge and the historically conditioned assumptions and categories employed in the formulation of ideas and conclusions.

But this development of knowledge, every stage of which has such a conditional character, is a development of knowledge

of the real material world, of the discovery of the interconnections and laws of motion of real material processes, including the development of human society and human consciousness. It is a progressive development, in which the bounds of knowledge are stage by stage enlarged, in which the agreement of ideas and theories with objective reality is stage by stage increased, and in which stage by stage what was provisional and hypothetical gives place to what is assured and verified.

In this development, it is always the case that the known is bounded by the unknown. The progress of discovery always comes up against barriers which arise from the limitations of existing knowledge and of existing methods. Dialectical materialism teaches that there are, however, no absolute bounds or limits to knowledge. While the progress of knowledge always faces barriers to further advance, knowledge progresses precisely by finding out how to get over them. There are no absolute limits to knowledge, no unknowable things-in-themselves, no mystery or secret of the universe, nothing which cannot in principle be known and explained.

Such is the extremely bold and optimistic credo of the dialectical materialist theory of knowledge. And such a theory of knowledge corresponds to the requirements of science.

In the first place, it is based on no idealist assumptions or abstract speculations, but is a generalisation from the actual development of science, from the history of the origin and development of human knowledge.

In the second place, it supplies the sciences with conceptions of the nature of knowledge and of its development which, being rooted in the actual practice of science, serve as a guide and instrument in the development of science.

The dialectical materialist theory of knowledge is for the sciences a means for the examination and criticism of their own assumptions and procedures. And this is something essential for the formulation and solution of the problems and tasks of science.

## CHAPTER 14

### MATERIALISM *versus* IDEALISM IN CONTEMPORARY PHILOSOPHY

#### I. THREE FORMS OF MODERN IDEALISM

IN the last chapter I stressed the class character of dialectical materialism, which is consciously the philosophy of the revolutionary working class movement. It is this which accounts for the attitude taken towards dialectical materialism over the past hundred years by the philosophers of the various bourgeois schools. They can on no account reconcile themselves with dialectical materialism or adopt its standpoint, and do not wish to do so. By many, dialectical materialism has been completely ignored, as if it belonged to another world from theirs—which in a certain sense is indeed the case. Others have adopted towards it an attitude of bitter and uncomprehending hostility. Others have found it worth discussing. They have reinterpreted its propositions in their own terms, “refuted” some of them and so revised and reformulated others as to make them acceptable from the standpoint of bourgeois philosophy.

Bourgeois philosophy has produced numerous ramifications of schools and systems since the time of Marx and Engels. Its tendency has been to become ever more specialised and academic, more and more the province of closed groups of university professors, more and more incomprehensible to all who have not been through the specialised “philosophical training” which capitalist society has evolved for its “philosophers.” But this has not prevented the theories of philosophers from being broadcast in various vulgarised forms for the benefit of the general public. Since the invention of broadcasting, philosophers themselves have begun to make a lucrative business out of this very vulgarisation of their own esoteric productions. Their theories provide a source which feeds the whole muddy stream of bourgeois popular “culture.”

Dialectical materialism, as I have pointed out, is the first absolutely consistent materialist philosophy. In this respect it

has in fact completed the polarisation of philosophy into its materialist and idealist camps. These two camps have become most sharply differentiated in contemporary philosophy.

In the one camp is dialectical materialism, which is that which is rising and growing in philosophy, which inherits the achievements of the great philosophies of the past and which develops philosophy as a science. In the other camp are the various schools of idealism—whose condition of disintegration, confusion and ideological collapse faithfully reflects the corresponding condition of bourgeois society.

Between the two there remain various schools of compromise, which maintain a standpoint materialist in some respects but draw back from pushing the application and consequences of materialism too far. Chief representatives of such half-way schools at the present day are some of the so-called critical realists and humanists in the United States and critics of idealism like Professor Gilbert Ryle among the professional philosophers in Britain.<sup>1</sup> Marxists recognise such philosophers as allies of materialism against idealism.

The majority of the bourgeois schools of philosophy, however, including the schools of positivism, which it is the business of this book to examine, have passed over absolutely and completely into the camp of idealism.

Lenin wrote that "the genius of Marx and Engels consisted in the very fact that in the course of a long period, nearly half a century, they developed materialism, that they further advanced one fundamental trend in philosophy."<sup>2</sup> The struggle of Marxism in philosophy is the struggle of materialism against idealism.

What is the central issue between materialism and idealism, which has run through the entire history of philosophy? It was simply stated by Engels as follows:

"The great basic question of all philosophy, especially of modern philosophy, is that concerning the relation of thinking and being . . . the answers which the philosophers gave to this question split them into two great camps. Those who asserted the primacy of spirit to nature, and, therefore, in the

<sup>1</sup> See Gilbert Ryle, *The Concept of Mind* (London, 1949) and *Dilemmas* (Cambridge, 1954).

<sup>2</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 6, section 4.

last instance, assumed world creation in some form or other . . . comprised the camp of idealism. The others, who regarded nature as primary, belong to the various schools of materialism.”<sup>1</sup>

To grasp, however, the central points at issue between Marxist materialism and the idealists in contemporary philosophy, it is necessary to particularise further, and to distinguish various different elements or components of the idealist approach. This task was undertaken, and the results summarised, by Stalin, in his chapter on Dialectical and Historical Materialism contained in the *History of the Communist Party of the Soviet Union*.<sup>2</sup>

Stalin distinguishes three principal elements of idealist theory.

(1) There is that element of idealism which “regards the world as the embodiment of an ‘absolute idea,’ a ‘universal spirit,’ ‘consciousness’”; that is to say, the element of insistence upon the ultimate spiritual nature of the world, the existence of a spiritual reality which underlies, conditions or explains the material world.

This is the element of *objective idealism*—old-fashioned, classical idealism. It does not deny that the material world exists, or that we can gain extensive knowledge about material processes. But it says that material existence is secondary, or derivative, and that behind it is the ultimate reality, which is spiritual. Such idealism is exemplified in the simple theological view that God created the world (not always so simple, it is true, when they try to say how he did it); and then again in more complicated philosophical theories, such as Leibniz’s theory that matter is only the outward manifestation of the activity of spiritual monads, Hegel’s theory that the world is the embodiment of the Absolute Idea, or Whitehead’s that real processes consist in the ingression of Eternal Objects into space and time.

(2) There is the element of idealism which denies that the material world exists at all, and asserts that only sensations, perceptions, ideas exist. This is the element of *subjective idealism*, for which the material world is neither a separate existence created by God, nor the outward manifestation of a

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 2.

<sup>2</sup> See Stalin, *Dialectical and Historical Materialism*.

collection of spiritual monads, nor the materialisation of the Absolute Idea, but is a collection of sensations in my mind.

(3) Closely related to *subjectivism* is the *relativism* which denies the possibility of knowledge of objective reality. Relativism insists that whether the material world exists or not, we can know nothing about its nature: all knowledge is relative, phenomenal, of appearance only and not of "things in themselves." It "denies the possibility of knowing the world and its laws . . . does not believe in the authenticity of our knowledge, does not recognise objective truth, and holds that the world is full of 'things in themselves', which can never be known to science . . ."

It is important to distinguish these three elements of idealist theory—which can be conveniently labelled *objective idealism*, *subjectivism* and *relativism*—because in different idealist philosophies different elements play a more or less prominent part. Thus in the thought of some philosophers one element plays so predominant a part, the others being relegated to a minor role or even excluded, that it is possible to speak of definite types or forms of idealist philosophy—objective idealism on the one hand, subjective idealism and relativism on the other.

Hegel, for instance, was predominantly an objective idealist—the elements of subjectivism and relativism played little part in his views. In the case of most positivists, on the other hand, the elements of subjectivism and relativism are predominant, and views typical of objective idealism may be explicitly opposed. In the case of Berkeley, it was the element of subjectivism that played the major part in his idealist philosophy. On the other hand, a contemporary positivist like Hans Reichenbach (who has recently been honoured by having some of his views repeated by Bertrand Russell) is predominantly a relativist, and explicitly argues against both subjective and objective idealism. Again, an ancient philosopher such as Plato, in whose philosophy the element of objective idealism was predominant, and who maintained that while absolute knowledge was possible of the ideal Forms of things existing timelessly and independent of material being, knowledge of material things was always partial, uncertain and relative, was at the same time strongly opposed to the relativism of the Sophists.



Thus, in considering idealism in philosophy it is always necessary to distinguish these various elements of idealism, which are combined in various ways in the works of different idealist philosophers.

### *Marxist Philosophical Materialism*

Stalin then brings out the principal features of modern philosophical materialism, that is, of Marxist philosophical materialism, in terms of the materialist opposition to *all* these elements of idealism. "As to Marxist philosophical materialism," he says, "it is fundamentally the direct opposite of philosophical idealism."

(1) "Contrary to idealism, which regards the world as the embodiment of an 'absolute idea,' a 'universal spirit,' 'consciousness,' Marx's philosophical materialism holds that the world is by its very nature material, that the multifold phenomena of the world constitute different forms of matter in motion, that interconnection and interdependence of phenomena, as established by the dialectical method, are a law of development of moving matter, and that the world develops according to the laws of movement of matter and stands in no need of a 'universal spirit.' "

(2) "Contrary to idealism, which asserts that only our mind really exists, and that the material world, being, nature, exists only in our mind, in our sensations, ideas and perceptions, the Marxist materialist philosophy holds that matter, nature, being is an objective reality existing outside and independent of our mind; that matter is primary, since it is the source of sensations, ideas, mind, and that mind is secondary, derivative, since it is a reflection of matter, a reflection of being; that thought is a product of matter which in its development has reached a high degree of perfection, namely, of the brain, and the brain is the organ of thought; and that therefore one cannot separate thought from matter without committing a grave error."

(3) "Contrary to idealism, which denies the possibility of knowing the world and its laws, which does not believe in the authenticity of our knowledge, does not recognise objective truth, and holds that the world is full of 'things in themselves' that can never be known to science, Marxist philosophical materialism holds that the world and its laws are fully knowable,

that our knowledge of the laws of nature, tested by experience and practice, is authentic knowledge having the validity of objective truth, and that there are no things in the world which are unknowable, but only things which are still not known but which will be disclosed and made known by the efforts of science and practice."

Such are the consistently materialist teachings of Marxist philosophy, of dialectical materialism, which are opposed to all forms of idealism and which, in particular, are the basis for the criticism of the subjectivism and relativism which has become the most widespread and persistent form of idealism in contemporary philosophy.

## 2. THE IDEALIST NATURE OF CONTEMPORARY POSITIVISM

I now turn to the materialist criticism of positivism, or rather of positivism in its contemporary form of so-called logical positivism. Logical positivism reveals itself in the light of materialist criticism as a thorough-going idealist philosophy.

When idealism is defined in its most general aspect as the doctrine that spirit is prior to nature, it may at first sight seem wrong to assert that logical positivism is a variety of idealism, since logical positivism neither asserts that spirit is prior to nature nor that nature is prior to spirit, neither asserts nor denies "world creation," but declares that all such assertions are meaningless nonsense.

Logical positivism, reducing philosophy to analysis of language, claims to have transcended the "metaphysical" disputes of idealists and materialists—a claim which does not prevent it from also claiming to be materialist: not "metaphysical" materialism, but, in Carnap's phrase, "methodical materialism."

But the idealist nature of logical positivism becomes manifest in relation to the key issues over which the difference between materialism and idealism has come to be expressed in modern philosophy, which were detailed in the previous section. And thereby the type of idealism which logical positivism represents also becomes clear. The radical opposition of logical positivism to materialism, and, consequently, its own idealist nature, can

be seen most clearly in relation to the three features of materialism as opposed to idealism which were delineated by Stalin. It will be convenient to take them in reverse order.

(1) Does logical positivism hold, with materialism, that "the world and its laws are fully knowable, that our knowledge of the laws of nature, tested by experiment and practice, is authentic knowledge having the validity of objective truth"?

On the contrary, it rejects such a view of knowledge.

Logical positivism agrees that our knowledge of the laws of nature is expressed in natural science. But what is science? According to logical positivism, science is "a system of sentences," and "sentences are to be compared with sentences, not with 'experience,' not with 'a world,' nor with anything else." The "correctness" of scientific theory depends on how well it can be "systematised," on how well the general statements can be brought into agreement with the other general statements of science and with the observational protocol, and not on how well it can be brought into agreement with objective reality.

This view is equivalent to a complete relativism respecting knowledge. According to this view, our knowledge cannot be "authentic knowledge having the validity of objective truth," but represents merely the way we have chosen to systematise our general statements and to bring them into agreement with observations.

Logical positivists never talk about "things-in-themselves," or about the "unknowable," because they regard such talk as senseless. Nevertheless their views dovetail with idealist views about the limits of knowledge and the existence of unknowable things-in-themselves.

This is shown by the application of logical positivism in science, which finds expression, as I have already said, in the formalist approach now widely current in various branches of natural science. This formalist approach means that science seeks exclusively for formulæ to correlate observations and abandons the attempt to know the material reality which gives rise to the observations, but which is said to lie beyond the limits of empirical knowledge, to be unknowable.

Such an approach is strikingly manifested in contemporary quantum mechanics.

Thus Reichenbach, for instance, in his *Philosophical Foundations of Quantum Mechanics*, distinguishes "phenomena," which occur at the intersection of physical processes and are "observable," from "interphenomena," which are not observable. No account can be given of "interphenomena," according to him, which is free from "anomalies" and contradictions; statements about "interphenomena," i.e., about the physical processes themselves, are in principle unverifiable and are "neither true nor false." The physical world consists of "interphenomena," which is merely another word for unknowable "things-in-themselves."<sup>1</sup>

In a similar strain, Dirac stated that "What quantum mechanics does is to try to formulate the underlying laws in such a way that one can determine from them without ambiguity what will happen under any given experimental conditions. It would be useless and meaningless to attempt to go more deeply into the relations between waves and particles than is required for this purpose. . . . The only object of theoretical physics is to calculate results that can be compared with experiment, and it is quite unnecessary that any satisfying description of the whole course of the phenomena should be given."<sup>2</sup>

Dirac's confusion here arose from the fact that, like most bourgeois physicists, he equated a "satisfying description" of the physical world with a description in classical mechanistic terms. Because every such description breaks down in the face of advancing physical knowledge, he comes to the conclusion that no "satisfying description" either can or should be given.

What he does not see, but what dialectical as distinct from mechanistic materialism could have told him, is that the way to seek a more "satisfying description of the whole course of the phenomena" is not by seeking to reduce these phenomena to a process of mechanical interaction between ultimate components, whether particles or waves, but by seeking to disclose the dialectical contradictions inherent in the processes of nature. But that is by the way. The point is that Dirac's formalism was in essence an application of logical positivist

<sup>1</sup> See Hans Reichenbach: *Philosophical Foundations of Quantum Mechanics*, sections 6 *et seq.* and section 37.

<sup>2</sup> P. A. M. Dirac: *Quantum Mechanics*, 1st ed., pp. 2, 7.

ideas in physics and he himself justified it in terms of positivist philosophy.

Again, the so-called "principle of complementarity" in contemporary physics, first suggested by Bohr and then converted into a fundamental and unalterable "principle" by Rosenfeld and others, says that equations expressing the motions of particles and equations expressing wave motions represent simply two alternative languages for describing, or two alternative mathematical expressions for correlating, the data of observation. It explicitly denies the possibility of any deeper knowledge of the real physical processes underlying the observations.

This logical positivist relativism respecting our scientific knowledge, which is most clearly exemplified in physics, but which the logical positivists say has application throughout the whole field of science, quite clearly limits scientific knowledge in a way that accords fully with the idealist view that "the world is full of things-in-themselves that can never be known to science."

Despite its "materialist" pretensions, logical positivism does not oppose but supports this type of idealism—and can be, and is, used accordingly to give countenance to all the spiritualistic and mystical doctrines respecting these "things-in-themselves" which are invented by less "scientific" idealists.

(2) Does, then, logical positivism hold, with materialism, that "matter is objective reality existing outside and independent of our mind"?

On the contrary, it rejects such a view of matter. It rejects it as "senseless metaphysics."

Of course, logical positivists, like all other positivists, will admit that science teaches "that perceptions arise from the stimulation of the sense-organs," "that thinking is a function of the brain," and so on. But what are all these statements of science, according to logical positivism? They are formulæ in which a "scientific language" is used to co-ordinate the statements of our observational protocol.

The point was succinctly put by A. J. Ayer, professor of philosophy, or rather of logical positivism, in the University of London, in a symposium on *The Physical Basis of Mind* arranged by the B.B.C. Third Programme.

"What are the facts?" asked Professor Ayer. And he answered: "The facts are that the physiologist makes certain observations, and that these observations fall into different categories. On the one hand there are the observations which lead him to tell his story about nerve cells and electrical impulses. That is to say, the story is an interpretation of the observations in question. On the other hand there are the observations which he interprets by saying that the subject of his experiment is in such and such a 'mental' state, that he is thinking, or resolving to perform some action, or feeling some sensation, or whatever it may be. It is then found to be the case that these two sorts of observations can be correlated with one another. . . . My conclusion is . . . that talking about minds and talking about bodies are different ways of classifying and interpreting our experiences."<sup>1</sup>

So logical positivism, when it accepts from science statements about "the physical basis of mind," accepts such statements simply as "interpretations" of "our experiences," as ways of correlating given observations. Some observations are conveniently expressed in one language—the language of "nerve cells and electrical impulses"; other observations are conveniently expressed in another language—the language of "mental states." But both languages refer to observations, and to speak of "the physical basis of mind" is only a way of expressing a particular correlation amongst observations. All the observations are part of the same basic protocol, whose statements, as Carnap put it, "describe directly given experience."<sup>2</sup>

But materialism asks the question: Does this "directly given experience," do our perceptions, reflect objective reality, existing outside and independent of our experience, or do they not? Materialism asks this question, and answers it in the affirmative. Logical positivism, on the other hand, does not ask this question and cannot recognise such a question. But thereby in effect it rejects materialism, and answers that there is no reality outside the "given experience."

It rejects the materialist view that our perceptions are a source of knowledge of objective reality existing outside and

<sup>1</sup> *The Listener*, Vol. XLI, No. 1066, June 30, 1949, p. 1110.

<sup>2</sup> Carnap: *The Unity of Science*.

independent of our minds, and that the test of science lies in its agreement or disagreement with this objective reality. In so doing, it tacitly accepts and supports the subjective idealist view, that nothing exists but our own sensations, ideas and perceptions, and that the test of science lies solely in its agreement or disagreement with "directly given experience."

According to materialism, "one cannot separate thought from matter without committing a grave error." Logical positivists say they agree. Of course not, they reply, and they point out that in the "language of science," statements about thought are coordinated with statements about matter in such a way that this separation is not allowed by scientific language.

All they mean is that, in experience, one set of observations is correlated with another set of observations. But it is one thing to say that observations which we express in a language of "mental states" are correlated with observations which we express in a language of "nerve cells and electrical impulses." It is another thing to say that those mental states are the conscious aspect of the neural activity of the brain, which is a form of movement going on in the objective material world which exists independent of all experience, and that consciousness is nothing but a reflection of matter. Materialism says the latter; logical positivism rejects such a statement and substitutes for it the former statement.

Materialists are not dealing "formally" with "the language of science," but with the content of scientific and philosophical views. It is precisely in what logical positivism has to say about the language of science that is contained its idealist separation of thought from matter, its subjective idealism.

For materialism, thought is a product of matter and a reflection of matter. But logical positivism bases itself on considering the properties of the expression of thought—language—in absolute abstraction, completely severed from its material basis, from its actual functioning as an instrument of thought in reflecting and comprehending the objective world.

Logical positivism starts from an abstraction which is essentially idealist in character. It considers thinking, which is based on material processes and reflects them and is itself nothing but one form of the movement of matter, just by itself,

in its linguistic expression. On this idealist basis it proceeds to deduce what can and cannot be "said" and to lay down rules for the interpretation of statements. And it inevitably arrives at the idealist conclusion that it is senseless to talk about matter as objective reality existing outside and independent of our minds.

Thus logical positivism rejects the materialist view that matter is objective reality existing outside and independent of our minds, precisely on the basis of its idealist approach to thought and its expression, precisely on the basis of its idealist separation of thought from matter.

(3) Lastly, does logical positivism hold, with materialism, that "the world is by its very nature material, that the manifold phenomena of the world constitute different forms of matter in motion"?

No, it denies this, it rejects it as senseless.

For the logical positivists, applying their conception of the analysis of language and the principle that the meaning of a statement is given by its mode of verification in experience, painstakingly explain that to describe the world in terms of "matter in motion" and, alternatively, to describe it in terms of "perceptions and sense-data," are merely two different "languages" for doing the same thing, namely, making statements which can be verified in experience.<sup>1</sup> Clearly, therefore, they reject the materialist view that "the world is by its very nature material."

Logical positivists explain that they prefer to say nothing about "the nature" of the world, for they regard such statements as senseless. Nothing can be said or known about the nature of the world; theirs is an extreme form of relativism.

As for science, Carnap says it "is a system of statements based on direct experience and controlled by experimental verification."<sup>2</sup> The aim of science is to produce formulae which will give the right answers in relation to the protocol of observational statements which become available to scientists. Scientific theory is thus diverted into formalist channels by the logical positivist doctrine of idealism, which teaches that

<sup>1</sup> See A. J. Ayer: *Foundations of Empirical Knowledge*, ch. I.

<sup>2</sup> Carnap: *The Unity of Science*.



the last thing science can or should try to do is to reveal the objective laws of matter in motion.

The logical positivists say that they have no views about the nature of the world. But their "logic of science" nevertheless provides a battery of arguments for those who are concerned to propagate spiritualistic views about the nature of the world. There is today not a single idealist philosopher or theologian, however different and opposed his idealism may be to that of the positivists, who does not continually make use of positivist arguments against materialism and in support of idealism.

I conclude, therefore, that logical positivism is, in its whole approach and in its opposition to materialism, a thorough-going idealist philosophy; and that the type of idealism which it represents is the subjectivist and relativist type of idealism. This is the basis of the materialist criticism of logical positivist philosophy in all its ramifications.

### 3. POSITIVISM AND "SHAMEFACED" MATERIALISM

In expounding Marxist materialism in the Introduction to his *Socialism, Utopian and Scientific*, Engels noted that some of his contemporaries, who were propagating and defending materialist views against idealism, had nevertheless introduced into their expositions of materialist views an idealist gloss, in the form of positivist conceptions.

These men were materialists. But because materialism was not held to be a respectable doctrine in 19th century bourgeois society, they drew back at an open and unashamed advocacy of materialism and covered up their materialism by a simultaneous advocacy of positivist views. He therefore referred to them as "shamefaced" materialists. It was the great agnostics of the latter part of the 19th century that he had in mind when he used this term—such men as T. H. Huxley.

Hence, despite the positivist conceptions of these thinkers, Engels did not treat their philosophy as idealist, but regarded their positivism simply as a kind of idealist face-saving clause superimposed upon a philosophy essentially materialist in its approach. How does this square with my statement that contemporary "logical" positivism is a thorough-going idealist philosophy?

Engels gave a very precise characterisation of the agnosticism of the thinkers to whom he was referring.

"What, indeed, is agnosticism," he wrote, "but, to use an expressive Lancashire term, 'shamefaced' materialism? The agnostic's conception of nature is materialistic throughout. The entire natural world is governed by law, and absolutely excludes the intervention of action from without. But, he adds, we have no means either of ascertaining or of disproving the existence of some supreme being beyond the known universe. . . .

"Again, our agnostic admits that all knowledge is based upon the information imparted to us by our senses. But, he adds, how do we know that our senses give us correct representations of the objects we perceive through them? And he proceeds to inform us that, whenever he speaks of objects or their qualities, he does in reality not mean these objects and qualities, of which he cannot know anything for certain, but merely the impressions which they have produced on his senses. . . .

"As soon, however, as our agnostic has made these formal mental reservations, he talks and acts as the rank materialist he at bottom is. He may say that, as far as *we* know, matter and motion can neither be created nor destroyed, but that we have no proof of their not having been created at some time or other. But if you try to use this admission against him in any particular case, he will quickly put you out of court. If he admits the possibility of spiritualism *in abstracto* he will have none of it *in concreto*. As far as we know and can know, he will tell you that there is no Creator and no Ruler of the universe; as far as we are concerned, matter and energy can neither be created nor annihilated; for us, mind is a mode of energy, a function of the brain; all we know is that the material world is governed by immutable laws, and so forth. Thus, as far as he is a scientific man, as far as he *knows* anything, he is a materialist; outside his science, in spheres about which he knows nothing, he translates his ignorance into Greek and calls it agnosticism."<sup>1</sup>

It has been asked: Does not this description fit the contemporary "logical" positivists? Are they not rather

<sup>1</sup> Engels: *Socialism, Utopian and Scientific*, Introduction.

“shamefaced” materialists than idealists? Such a question shows a lack of understanding both of the progressive thinkers whom Engels called “shamefaced materialists” and of the contemporary positivists, as well as a lack of understanding of the difference between materialism and idealism.

In no sense have the contemporary positivists a materialist conception of nature comparable with that of the great agnostics.

In the first place, their conception is one which rules out the objective existence of causality in nature and of natural laws, vehemently asserted by the agnostics but which, the positivists now assert, is a mere metaphysical invention, a meaningless expression. They are not materialists with “formal mental reservations,” but have systematised these reservations into a complete anti-materialist system. They are not materialists in science like the agnostics, but it is precisely in the field of science that they defend idealism, in the form of subjectivism and relativism, and attack materialism.

In the second place, a leading feature of the materialist views of the agnostics was their conception of development, of the universality of progress. They held the view that in nature, as Engels put it, “in spite of all seeming accidents and of all temporary retrogression, a progressive development asserts itself in the end.” They held that this development proceeded throughout according to natural law, alike in the formation of living organisms from inorganic matter, in the evolution of the species of living organisms and in the evolution of human society. This materialist conception of development was a central feature of their thinking, although their lack of understanding of materialist dialectics made it impossible for them to elaborate it and led them to the introduction of many idealist fantasies in their endeavour to explain the process of development. But this whole progressive, materialist concept of development has disappeared in contemporary positivism: it has been entirely given up and cast out by the latest scientific philosophers.

This fact corresponds to the social and political changes which have taken place in the capitalist world in the meantime. In the 19th century, bourgeois thought had still its ideologists of progress, who based themselves on materialist ideas, in however

“shamefaced” a way, and with whatever formal reservations. Monopoly capitalism today knows nothing of progress. The idea, like the reality, is foreign to it. In this respect, too, the views of the contemporary positivists are utterly unlike those of the agnostics, whose materialism was recognised by Engels.

#### 4. IDEALISM UP TO DATE

In as much as there are two opposite and conflicting movements or trends in philosophy, then, materialism and idealism, it is clear that logical positivism is part of the trend of idealism. It is a variety of modern idealist philosophy.

But within the stream of idealism there are various different currents.

There is the idealism of the old-fashioned, classical type, which still seeks to establish some kind of “system” of idealist philosophy. This type of idealism proclaims that the real or ultimate nature of the world is spiritual—that the material world is mere appearance and that only spirit exists; or else, admitting a dualism of spirit and matter, that spirit is prior to matter and that behind material processes, or immanent in them, are spiritual forces, in terms of which alone can the world ultimately be understood and explained.

Contrasting with this classical type of idealism is the new up to date idealism of the positivists. This idealism will have nothing of any “system,” it will say nothing of “the nature of the world.” Instead, it sets about an “analysis of language,” in order to discover what can and cannot be “said,” in order to regulate and direct our thoughts about the world by considering the “logical syntax” of the language in which we express them.

This idealism is new—and yet it is at least as old as Kant. Kant said that the task of philosophy was not to “dogmatise” about the nature of the world, but “critically” to examine the way we think. And on that basis, entirely separating thought from matter, he arrived at the conclusion that “things-in-themselves” are unknowable and that all possible knowledge is limited to the realm of “phenomena.” Logical positivism is simply a “new” brand of neo-Kantianism, in which the “critical” examination of the logic of language, as the

expression of thought, is substituted for the "transcendental deduction of the categories."

The essence of idealism, as was brought out in Engels' classical definition of the conflict of idealism and materialism, is that it falsifies the relationship of thinking and being. It falsifies the relationship of thinking and being by asserting "the primacy of spirit to nature." Logical idealism carries out this falsification precisely in its "analysis of language," as the expression of thinking. This is the peculiarity of positivism, as a current of idealism.

The fact that positivism is a current of idealism distinct from other currents, which pursue the classical procedure of generalising about the spiritual nature of the world, has misled many people as to its true nature. For the positivists will be found arguing with the other idealists, and the remarks which each pass about the other's views are often far from complimentary. This leads to the impression that here is a fundamental philosophical conflict—that the positivists are in fact opposed to idealism.

But these arguments are merely the surface eddies produced when there are different currents in the same main stream. Such eddies may well puzzle and mislead the poor fish that swim in the far from limpid waters of the stream of idealist philosophy.

The current of positivism flows along the main stream. Like all the currents of idealism, it issues in the same opposition against the materialist view of the world and of mankind and human thought. Its arguments and analyses of language serve to reinforce every idealist view opposed to materialism. It joins with every other contemporary current of idealism in teaching the limitations of scientific knowledge, the impotence of reason, the impossibility of a rational comprehension of objective reality, the relativity of truth, the mysteriousness and incomprehensibility of the universe, the illusoriness of social progress.

## CHAPTER 15

### FOR AND AGAINST METAPHYSICS

#### 1. WHAT IS METAPHYSICS?

EVER since Berkeley announced that "the general idea of Being appeareth to me the most abstract and incomprehensible of all other" and that "matter being once expelled out of nature drags with it . . . an incredible number of disputes and puzzling questions which have made . . . much fruitless work for mankind," subjective idealists have always advertised themselves as the opponents of "metaphysics." Contemporary positivists of all brands, and especially the "logical" positivists, present "metaphysics" as the chief enemy of truth and clarity of thought in philosophy, and themselves as the standard-bearers of the fight against metaphysics.

Many philosophers agree nowadays that "metaphysics" is something to be avoided. But the word is vague and ambiguous, and if it is to be used as a term of criticism, then it is important to clarify the sense in which it is so used.

Historically, the term "metaphysics" derives from Aristotle, whose treatise on the subject which he called "first philosophy" came to be known as "metaphysics" because it came after his physics in the order of his collected works. He defined it as "a science which investigates being as being and the attributes which belong to it in virtue of its own nature," adding that it was concerned primarily with substance, "of which the philosopher must grasp the principles and causes."<sup>1</sup>

When positivists speak about "metaphysics" they often seem to have rather vaguely in mind the kind of thing Aristotle referred to as "first philosophy." Thus they characterise as "metaphysics" any attempt to arrive at a very wide generalisation about the world, or to describe the "essential nature of the real" or "the substance of things." This, they say, cannot be done and should not be attempted; and so the

<sup>1</sup> Aristotle: *Metaphysics*, Book 4, chs. 1-2.

word "metaphysics" acquires with them its derogatory significance.

Such a characterisation of "metaphysics" clearly derives from John Locke, whose ideas have had great influence in modern positivism. For he may be said to have been expressing "anti-metaphysical" conceptions, in this sense, when he wrote that we can form no idea of "the secret abstract nature of substance in general"—for he was saying that it is impossible to work out any accurate idea of the nature of substance as such.<sup>1</sup>

Such an attempt, however, to define "metaphysics" in terms of its subject-matter, is hardly satisfactory. For in a sense all science, as well as philosophy, is concerned with the substance of things and with the nature of the world. If, then, to speak of the substance of things and the nature of the world is "metaphysical," then science itself has a "metaphysical" tendency.

It may be said that "metaphysics" is not concerned, as are the various empirical sciences, with particular things or particular parts or aspects of the world, but with "being as being," that is to say, with attempting very wide generalisations about the world, which go beyond anything coming within the province of any of the special sciences.

However, to say this only conceals a very important distinction, namely, the distinction between a wide philosophical generalisation which is based on experience and the results of the sciences, and which we attempt to justify and are prepared to modify in the light of experience and science, and one which is not so based but which is of a dogmatic, speculative or a-priori character. Aristotle, it is true, made no such distinction when he originally defined "first philosophy"; but the progress of science during the intervening two thousand years has made such a distinction highly relevant today.

I conclude that the use of the term "metaphysics" to cover any and every attempt at generalisation about the nature of the world is not a helpful use of this term in contemporary philosophy. It is both vague and misleading. And it is in fact employed simply as a convenient device or stereotype for

<sup>1</sup> Locke: *Essay on the Human Understanding*, Book II.

branding as a "metaphysician" anyone who is not prepared to accept the positivist theory of knowledge and the positivist interpretation of science. It completely fails to distinguish between that type of philosophical generalisation which is scientifically valid and useful, and that type which is not. If "metaphysics" is to be used as a term of criticism, it will be best to reserve its application for the latter type of generalisation.

This means that we should seek to characterise metaphysics, not as comprising every generalisation about the nature of the world, but as a generalisation of a definite type, or as a definite *way of thinking*. In contrast to the loose use of the term by contemporary positivists, this is how it was defined by Engels, and this is how it is used in contemporary scientific or dialectical materialism.

What, then, is the metaphysical way of thinking, whose products are to be characterised and criticised as "metaphysics"?

Engels, in his *Anti-Duhring*, characterised the metaphysical way of thinking by examining its historical roots, how it arose.

"When we reflect on nature, or the history of mankind, or our own intellectual activity," he wrote, "the first picture presented to us is of an endless maze of relations and interactions, in which nothing remains what, where and as it was, but everything moves, changes, comes into being and passes out of existence. This primitive, naïve, yet intrinsically correct conception of the world was that of ancient Greek philosophy, and was first clearly formulated by Heraclitus: everything is and also is not, for everything is in flux, is constantly changing, constantly coming into being and passing away. But this conception, correctly as it covers the general character of the picture of phenomena as a whole, is yet inadequate to explain the details of which this total picture is composed; and so long as we do not understand these, we also have no clear idea of the picture as a whole. In order to understand these details, we must detach them from their natural and historical connections, and examine each one separately, as to its nature, its special causes and effects, etc. . . ."

Engels goes on to say that the metaphysical way of thinking arises out of the very achievement of scientific methods of thought.



"The analysis of nature into its individual parts," he continues, "the grouping of the different natural processes and natural objects into definite classes, the study of the internal anatomy of organic bodies in their manifold forms—these were the fundamental conditions of the gigantic strides in our knowledge of nature which have been made during the last four hundred years. But this method of investigation has also left us as a legacy the habit of observing natural objects and natural processes in their isolation, detached from the whole vast interconnection of things; and therefore not in their motion but in their repose; not as essentially changing but as fixed constants; not in their life, but in their death. And when . . . this way of looking at things was transferred from natural science to philosophy, it produced the specific limitations of . . . the metaphysical mode of thought."<sup>1</sup>

In his *Feuerbach* he characterises the metaphysical way of thinking as a way of thinking which regards "things as given, fixed and stable," which "accepts things as finished objects" and tries to know "*What each particular thing is.*"<sup>2</sup>

Metaphysics, then, may be said to take its origin from certain universal and necessary functions of scientific thought, namely, abstraction and classification.

To think at all it is necessary to abstract. It is necessary to separate out certain objects for consideration, to detach them as separate and distinct objects of thought from the total flux of becoming in which we live our lives. Indeed, this process of abstraction, and the resulting classification, takes place in the activity of perception itself, even before anything of the nature of reflective thinking arises. And in reflective thinking it becomes necessary, in order to obtain any scientific and detailed conception of the world, or of any part or aspect of it which concerns us, to carry forward this process of abstraction by distinguishing the main kinds of things with which we are concerned, classifying them, distinguishing their various properties and the various kinds of relationship into which they enter.

This is how we think, and this universal character of thinking is embodied in the very structure of language.

<sup>1</sup> Engels: *Anti-Duhring*, Introduction.

<sup>2</sup> Engels: *Ludwig Feuerbach*, ch. 4 (my italics).

But when we abstract and classify and assign the properties of things—which we have to do, in order to think at all—it needs to be remembered that the objects which we separate out in thought do not exist in separation—that they are changeable and come into existence and cease to exist; that their properties depend on circumstances; that a given thing may turn into something else; and that the principles of classification which we adopt, useful as they may be for the purposes originally intended, may under certain circumstances break down and need to be revised.

It is extremely easy, however, to adopt a habit of thought which ignores all this, and does not take it into account. And it is from such a habit of thought that metaphysics arises.

Metaphysics arises when we try to generalise our picture of the world, and when in doing so we speak as though to the things which we think of in abstraction there corresponded things which exist in abstraction, and which have their own fixed nature independent of other things and of their own coming into being and ceasing to exist; as though to the properties which we assign to things there corresponded just so many fixed properties which everything must either have or not have; and as though to the classificatory distinctions which we make there corresponded rigid and impassable antitheses between things.

Metaphysical generalisation in philosophy may be described as that kind of generalisation which tries to comprehend the world in a single formula, of the sort which says that the world consists of things of such and such a kind, whose nature is marked off, circumscribed and delimited in terms of fixed categories, and which exist in a fixed framework of relationships.

Typical of the metaphysical way of thinking, for instance, is the time-honoured controversy of monism and pluralism, at least in the way it is commonly presented in bourgeois textbooks, as a controversy between metaphysicians who say that the world is a single substance, which they endeavour to characterise, and whose internal structure they seek to describe by means of some formula; and those who say that the world is an aggregate of many substances, each of which has its own characteristic and clearly defined properties and which co-exist in a definite system of relationships.

Again, when it is said that metaphysics is concerned with "being as such" or with "the ultimate nature of reality," it is the production of such metaphysical formulæ that is usually in question. Philosophers have wanted to say that everything that exists has precisely such and such a character, or that the whole flux of change and becoming which is presented to us in our perceptions is produced by certain definite and fixed types of interaction between certain definite and fixed types of things.

It may be remarked that in the passage which I quoted above, Engels referred specifically to the production of metaphysical generalisations in modern scientific and philosophical thought. This type of generalisation was, however, already well represented in Greek philosophy, where it arose for the reasons which he assigned for metaphysics—namely, from the first attempts at "the analysis of nature into its individual parts." Thus, for example, the Greek atomists constructed a generalisation according to which everything that happens is the result of movements and collisions of atoms in the void. Their formula was that the world consists of a void containing indestructible atoms in eternal motion. This metaphysical type of materialism has also found its place in modern philosophy. It is known as mechanistic materialism, for mechanism is a form of metaphysics.

Again, Locke thought he was formulating an anti-metaphysical conception when he said that we cannot inquire into "the secret nature of substance"; and the same applies to Kant when he distinguished the unknowable "thing-in-itself" from the "phenomenon." Nevertheless, it may now be stated that they were both continuing to think metaphysically. They were drawing a purely metaphysical distinction between the "substance," what a thing is "in itself," and the totality of its properties and relations and what it is "for us."

## 2. DIALECTICS *versus* METAPHYSICS

Such, then is metaphysics. And it is contrasted by Engels to dialectics. It is precisely in the dialectical way of thinking that the limitations of the metaphysical way of thinking are overcome.

Dialectics, said Engels, is that way of thinking, "which grasps things and their images, ideas, essentially in their inter-connection, in their sequence, their movement, their birth and death. . . ." <sup>1</sup>

While the metaphysical way of thinking owes its origin to science, nevertheless the development of science itself shows the way to overcome the metaphysical way of thinking. "The revolution which is being forced upon theoretical natural science . . . is of such a kind that it must bring the dialectical character of natural events more and more to the consciousness even of those empiricists who are most opposed to it. The old rigid antitheses, the sharp, impassible dividing lines are more and more disappearing. . . . The recognition that these antitheses and distinctions are in fact to be found in nature, but only with relative validity, and that, on the other hand, their imagined rigidity and absoluteness have been introduced into nature only by our minds—this recognition is the kernel of the dialectical conception of nature." <sup>2</sup>

The dialectical way of thinking, in contrast to metaphysics, has at its foundation "the great basic thought that the world is not to be comprehended as a complex of ready-made *things*, but as a complex of *processes*, in which things apparently stable no less than their mind images in our heads, the concepts, go through an uninterrupted change of coming into being and passing away. . . ." <sup>3</sup>

Dialectics rests on the conception "that nature does not just *exist*, but *comes into being* and *passes away*. . . ." <sup>4</sup> On this basis it can be seen that no formula can be valid which describes the world in terms of a system of metaphysical categories.

Positivists have been in the habit of contrasting their own empirical point of view to the fantasies of metaphysicians. But it can now be seen that this contrast is false. An empirical philosophy can be just as metaphysical as a philosophy which is avowedly based on a-priori speculations. In fact, the metaphysical way of thinking has been more in evidence amongst so-called empiricists than among any other class of

<sup>1</sup> Engels: *Anti-Duhring*, Introduction.

<sup>2</sup> Ibid.

<sup>3</sup> Engels: *Ludwig Feuerbach*, ch. 4.

<sup>4</sup> Engels: *Dialectics of Nature*, Introduction.

philosophers. And this has been demonstrated throughout the whole history of modern empiricism.

The empiricist Locke, for instance, formulated the rigid, metaphysical distinction between "primary and secondary qualities," and between the unknowable "substance" and its knowable properties and relations. When Berkeley criticised these Lockean distinctions as metaphysical, he only paved the way to more metaphysics. After him came the metaphysical analysis of pure experience into its components, already begun by Locke—into separate impressions and ideas, which were combined together according to certain rules; into sensations and "sense-data." And this has given rise to a flood of metaphysical speculation during the last hundred years, from Mach's "neutral monism," according to which the "elements" of the world are separate sensations, to Wittgenstein's theory that the world consists of "atomic facts," each of which "can be the case or not be the case, and everything else remain the same."<sup>1</sup>

Thus the endeavour to encompass the known world within the framework of a metaphysical formula has been the constant preoccupation of empiricists, right up to the present day, and finds its negation only in dialectics—in dialectical materialism.

At the same time, the positivists are equally wrong in thinking that any and every attempt to arrive at a conceptual representation of "the nature of the objective world" is inevitably metaphysical—that to speak of "the reality of the physical world" and so on is metaphysics. True, such a theoretical enterprise may be approached in a metaphysical way and lead to metaphysical conclusions. But such an enterprise need not be approached metaphysically. On the contrary, as Engels has pointed out, "an exact representation of the universe, of its evolution and that of mankind, as well as of the reflection of this evolution in the human mind, can . . . only be built up in a dialectical way, taking constantly into account the general actions and reactions of becoming and ceasing to be, of progressive or retrogressive changes."<sup>2</sup>

Of course, such a dialectical representation of reality cannot

<sup>1</sup> Wittgenstein: *Tractatus Logico-Philosophicus*, 1.21.

<sup>2</sup> Engels: *Anti-Dühring*, Introduction.

be spun out of the heads of philosophers, but must be based on experience and the results of science. "To me," said Engels, "there could be no question of building the laws of dialectics into nature, but of discovering them in it and evolving them from it. . . . Nature is the test of dialectics."<sup>1</sup>

Moreover, it cannot be complete and final, in the way that so many metaphysical "systems" have claimed to be. "A system of natural and historical knowledge which is all-embracing and final for all time is in contradiction to the fundamental laws of dialectical thinking," wrote Engels; but went on to add: "which, however, far from excluding, on the contrary includes, the idea that the systematic knowledge of the universe can make giant strides from generation to generation."<sup>2</sup>

This discussion of the nature of metaphysics leads, then, to the following conclusion. Positivists have regarded as metaphysical any attempt to form a conceptual representation of the nature of the objective world. But, on the contrary, from accumulating scientific knowledge we do gain such a representation, which is dialectical not metaphysical in character.

Metaphysics is correctly regarded rather as the attempt to sum up the nature of the world, or of any particular part of the world which is being investigated, under some formula of the sort which says that there exist certain definite things, each with its own fixed nature and properties, marked off and distinct from one another and co-existing and interacting in some fixed framework of relationships. In this sense, positivism itself has always borne a metaphysical character.

### 3. PURE SEMANTICS—AN EXCURSION INTO METAPHYSICS

Intending to deal a final death blow to "metaphysics" and at the same time to keep out of the pit of solipsism into which other positivist philosophers had fallen, Carnap and the Vienna Circle had announced that philosophy must be restricted to the "analysis of language," and that this in turn must be restricted to "the logical syntax of language," that is, to the analysis of the rules for the correct construction of sentences and of the relations between words, without any

<sup>1</sup> Engels: *Anti-Duhring*, Introduction.

<sup>2</sup> *Ibid.*

regard to the meaning of sentences and to the relations of words and things. Such a philosophy, they considered, would instruct mankind how to use language correctly and so to avoid all the "metaphysical" puzzles and errors which arise from incorrect uses of language.

But they were unable to maintain this standpoint for long. To philosophise about language while continuing to ignore the fact that words have a meaning was an effort of abstraction which proved to be beyond their powers. For since the whole function of language is to communicate meaning, to work out its rules while ignoring that they are rules for communicating meaning was a totally impossible task.

Their realisation that "logical syntax" had led them up a blind alley came shortly after the emigration of Carnap and others of the Vienna Circle to the U.S.A. (an emigration forced on them by the Nazi regime in Germany and Austria at that time). The starting point of the trans-Atlantic philosophical adventures of the logical positivists lay in an extension of what was contained in "the analysis of language." Just as Carnap's view of philosophy as "logical syntax of language" was designed to cut out the subjectivism and "metaphysics" of other brands of positivism, so these latest developments of "logical" idealism were evidently designed to avoid some of the more paradoxical consequences of the theory of "logical syntax," which I referred to in the section above on the theoretical poverty of this philosophy. The amendments which were made in concert with some American positivist philosophers were evidently designed to overcome the complete inability of the earlier conceptions to give even the least convincing account of either logic or empirical science.

The extension and amendment of the former concept of "analysis of language" was announced in 1938 by the American C. W. Morris, in an article entitled *Foundations of the Theory of Signs*, which forms the second number of the *International Encyclopædia of Unified Science*, the publication of which was begun in that year.

C. W. Morris points out that "a sign" always functions in a three-fold relationship, namely: (1) to the people who use it as a sign, (2) to whatever it designates, (3) to other signs. Corresponding to these three relationships in which a sign

functions, there may be distinguished respectively: (1) the *pragmatic*, (2) the *semantic* and (3) the *syntactic* aspects or "dimensions" of the functioning of signs.

Language is an example of the use of signs. And from this "analysis" of the three "dimensions" of the functioning of signs the conclusion is drawn that in the "analysis of language" there is no occasion to limit consideration, as Carnap had previously maintained, to the syntactic dimension, i.e., to the relationship of signs to other signs. The semantic and pragmatic dimensions must also be considered, i.e., the meaning of words and statements and how they are used by the persons who employ them.

Accepting this analysis in his *Introduction to Semantics* (1940), Carnap says that three distinct fields of investigation may be distinguished in the analysis of language, namely, pragmatics, semantics and syntax. "The whole analysis of language" includes these three studies, and is not confined to syntax alone. He therefore concludes:

"Many of the earlier discussions and analyses are now seen to be incomplete, although correct; they have to be supplemented by corresponding semantical analysis. The field of theoretical philosophy is no longer restricted to syntax, but is regarded as comprehending the whole analysis of language, including syntax and semantics, and perhaps also pragmatics."<sup>1</sup> In the field of logic, the so-called "principle of tolerance" no longer applies. It turns out to have been a mistake; for the principles of logic which apply when rules of designation have been assigned and rules have been laid down for determining under what circumstances statements are true or false, are no longer "a matter of mere convention." The principles of logic are then "predetermined by the semantical rules of designation and of truth which are employed in constructing any semantical system."<sup>2</sup>

In the light of this wider conception of "the field of theoretical philosophy," "logical" positivism now starts its task of "analysis" all over again, but inspired with better hopes of success. What was said before is to be "supplemented by corresponding semantical analysis."

<sup>1</sup> Carnap: *Introduction to Semantics*, 39.

<sup>2</sup> Ibid.



In the Preface to *Introduction to Semantics* Carnap says that philosophy needs, besides a purely "formal" analysis of language, also an analysis of the signifying function of language, i.e., a theory of meaning and interpretation. This is the general theory of semantics.

At the outset he makes a distinction between "descriptive" semantics and "pure" semantics.

Descriptive semantics is supposed to deal with given historically constituted languages, and to describe how the various signs in those languages are actually used by the people speaking them for the purposes of communicating with one another. It is therefore "an empirical study," and is a branch of "pragmatics," which considers signs in relation to the people who make use of them and describes how and for what purpose those people employ those signs. Descriptive semantics includes the vocabulary and grammar of the particular historically constituted languages.

To descriptive semantics Carnap pays no further attention. On the other hand, pure semantics is the general theory of the "construction and analysis of semantical systems," i.e., of the definitions and rules involved in assigning meaning, and hence truth or falsity, to any expressions in any language, and of the analytic consequences of those definitions and rules.

Just as logical syntax, or pure syntax, was conceived as a logical as distinct from empirical theory, concerned with the formulation of the general forms which must be taken by the syntactical rules operative in the construction of any language, without reference to the actual characteristics of particular historically constituted languages, so pure semantics is also conceived of as a purely logical theory, concerned with the general form which must be taken by semantical rules—once again without reference to any actual language.

In attempting to work out the principles of "pure semantics," Carnap speaks of the relation of designation in which a sign or expression stands to that which it designates, and he distinguishes signs on the one hand from "designata" on the other hand.

He provides a list of the principal sorts of signs employed in language, with the corresponding designata. The signs include "individual constants," "predicates of degree 1" and

"predicates of degree 2 . . ." to which are correlated as designata, "individuals," "properties" and "relations." He also says that to a combination of signs constituting a sentence there is correlated a "proposition" and that a sentence designates a proposition. All the designata—individuals, properties, relations and propositions—he calls "entities."<sup>1</sup>

In *Meaning and Necessity* he speaks with a certain air of embarrassment about the "entities" which are designated by signs. "The term 'entity' is frequently used in this book. I am aware of the metaphysical connotations associated with it, but I hope that the reader will be able to leave them aside and to take the word in the simple sense in which it is meant here. . . ."<sup>2</sup>

Now there is, of course, an obvious common-sense way of speaking in which a name such as "John" is used to stand for a particular individual, and in which a predicate such as "bald-headed" is used to designate a property of such an individual, and in which a sentence, "John is bald-headed," means or expresses a proposition, i.e., the same proposition as is expressed by some different sentence in another language, e.g., "Jean est chauve." Carnap appears to be appealing to his readers to understand his words in nothing but this plain common-sense way.

Yet Carnap himself already shows that he is transgressing the bounds of common-sense expression when he begins to speak of "entities"—for it is not common sense, it is not ordinary usage, to speak of properties or relations or propositions as "entities."

Indeed, a classification of the "entities" which compose the world, and which we designate by our speech expressions, is essentially and inescapably a "metaphysical enterprise." And in such an enterprise Carnap has willy-nilly entangled himself. First bringing himself up against a dead end by trying to avoid metaphysics by ignoring any relation between words and things, Carnap is back in the very thick of metaphysics as soon as he ceases to ignore this relation.

In fact, in turning to "pure" semantics, Carnap has entangled himself in precisely the metaphysics which it was

<sup>1</sup> Carnap: *Introduction to Semantics*, 6.

<sup>2</sup> Carnap: *Meaning and Necessity*, p. 22.

the achievement of Russell and Wittgenstein to have introduced into modern formal logic.

Russell gave this metaphysical theory the name of "logical atomism." According to this view, there are three sorts of ultimate components of the world—things, properties and relations; and these ultimate components are combined together in so-called "atomic facts" of the form that a certain thing has a certain property, or that certain things are related together by a certain relation. Wittgenstein began his *Tractatus Logico-Philosophicus* by observing that the world is the totality of atomic facts—an atomic fact being a combination of "simple objects," which "form the substance of the world," every atomic fact being independent of every other.

This "logical atomism" provides a classical example of the metaphysical way of thinking; and Carnap, as a result of his semantical investigations, is now repeating it. He is using a philosophical language which describes the world as being composed of individuals and their properties and relations—and he freely adds other "entities" besides, such as propositions, which Russell and Wittgenstein never admitted into their own scheme. Carnap is explaining how we construct "atomic sentences" out of signs designating the "entities," and then how we construct compound sentences, generalisations, and so on. The truth of "atomic" sentences depends on whether the "entities" are actually combined in the way the corresponding signs are combined in the sentence, and the truth of other sentences depends on that of the atomic sentences.

This metaphysical scheme, which forms an integral part of Carnap's "pure" semantics, culminates in the semantical concept of "state-description" which he has introduced into his *Meaning and Necessity*.

Carnap speaks of a language, or semantical system,  $S_1$ , which contains signs designating individuals, and other signs designating their properties and relations. From these signs atomic sentences are constructed. The atomic sentences may then be grouped into sets, called "state-descriptions," each of which "obviously gives a complete description of a possible state of the universe of individuals with respect to all properties and relations expressed by predicates of the system. Thus the

state-descriptions represent Leibniz's possible worlds or Wittgenstein's possible states of affairs."<sup>1</sup>

Carnap continues: "There is one and only one state-description which describes the actual state of the universe; it is that which contains all true atomic sentences. . . . A sentence of any form is true if and only if it holds in the true state-description."

He then goes on to explain that "a sentence is logically true if it holds in all state-descriptions," corresponding to "Leibniz's conception that a necessary truth must hold in all possible worlds."

Thus we have the conception that "the actual state of the universe" is described in a collection of "atomic sentences"; and that there are many, indeed an infinite number, of possible states of the universe, of which only one is privileged to be actual. Later Carnap considers (without, however, decisively embracing) the conception that "there is only one fact, the totality of the actual world, past, present and future."<sup>2</sup> And the laws of logic are distinguished in that they hold, not only of the actual world, but "of all possible worlds."

Such is the metaphysics in which the theory of "pure" semantics becomes involved.

Logical positivism sought an escape from metaphysics by refusing to speak about the world and the relation of thought with its objects. That refusal led to such absurdities that the ban was lifted. And the anti-metaphysical positivists have immediately fallen back again into barren discussions of metaphysics.

#### 4. THE "ANALYSIS OF MEANING"

The difficulty which entangles those positivists who engage in "pure semantics" is that of formulating the nature of the rules of designation and truth which determine meaning. They consider a language of a given structure, containing proper names and predicates of various degrees (simple properties and relations of various orders) and have to describe the rules whereby those terms designate various "entities," and whereby sentences are true or false depending on the actual arrangement of the "entities."

<sup>1</sup> Carnap: *Meaning and Necessity*, pp. 9-10.

<sup>2</sup> *Ibid.*, p. 29.

In *Meaning and Necessity* Carnap discusses a variety of "methods" for formulating the rules of semantics. "The different conceptions of other authors discussed in this book," he writes, "for instance, those of Frege, Russell, Church and Quine, concerning semantical problems, that is, problems of meaning, extension, naming, denotation and the like, have sometimes been regarded as different theories, so that one of them at most could be right while the others must be false. I regard these conceptions and my own rather as different methods. . . . Our differences are mainly practical differences concerning the choice of a method for semantical analysis. Methods, unlike logical statements, are never final. For any method of semantical analysis which someone proposes, somebody else will find improvements, that is, changes which will seem preferable to him and many others."<sup>1</sup>

I will not attempt to follow him in discussing the numerous complications into which these various "methods" lead their authors. He opens up a prospect of endless experimentation with semantical methods, to keep academic philosophers gainfully employed for generations. But what he and the others are up against all the time is that the world does not analyse out metaphysically into such "entities" as they discuss, because "in the last analysis nature's process is dialectical and not metaphysical." And so whatever "method" they adopt in working out "different conceptions concerning meaning, extension, naming, denotation and the like," the result is always some metaphysical scheme.

Source of the trouble may be found in the conception of the three "dimensions" of the functioning of signs, and of the three corresponding distinct fields of investigation, pragmatics, syntax and semantics.

They want to study the semantical "analysis of meaning in language" as a separate and distinct field of investigation, i.e., as the field of investigation of the relationship of signs to what they signify. But signs and combinations of signs only signify in so far as they are used for purposes of communication by definite groups of people; and what they signify, and how they signify, is conditioned by the context of their employment and the human ends which their employment serves.

<sup>1</sup> Carnap: *Meaning and Necessity*, p. 204.

We speak, for example, of things and properties and relations. But this logical structure of language—which is exemplified in the many different grammatical and syntactical mannerisms of actual historically constituted languages—is the outcome of a complex process in which reality finds its reflection in the thought-products of the human brain. The way in which we distinguish and characterise things, and abstract their properties and relations—in short, the formation of concepts and their use—is the way in which objective material reality has come to be reflected in our thought-representation of it, conditioned by the human ends of communication and expression which our language serves. It is not a mirror-image of the existence of “things, properties and relations” as ready-made “entities.”

According to Marx, “the ideal is nothing else than the material world reflected by the human mind and translated into forms of thought.”<sup>1</sup> The semantical positivists, on the other hand, are content to take “the ideal,” as expressed in the logical structure of our thought, as something given, fixed and ultimate. And then, when they come to speak of the meaning of language and the designation of terms, they postulate metaphysical “entities” corresponding to the elements of the logical structure. Considering language in an abstract way, as a system of signs, they seek to analyse the relation of signs to what they designate; and all they can do is postulate a metaphysical “entity” whenever they want to find a designation, and invent “rules” correlating these “entities” with the signs which are supposed to designate them.

But to understand “the problems concerning meaning, extension, naming, denotation and the like” which are involved in the significant use of language, it is necessary to consider the way in which language is historically constituted, and the human purposes it serves. It will not do to consider a language of a particular structure in isolation, and to try to invent “methods” for formulating its “semantic rules.” All such “methods” can only result in metaphysical fantasies. These metaphysical fantasies are in fact the products of the basically idealist approach to the “analysis of language”

<sup>1</sup> Marx: *Capital*, Preface to the Second Edition.

which is characteristic of "logical" positivism in all its forms, and which is by no means "corrected" by the addition of semantical to syntactical "investigation."

To the "methods" of the "logical" positivists may be counterposed the method of dialectical materialism. Dialectical materialism is by no means unconcerned with the problem of the "analysis of meaning in language." But dialectical materialism demands that language shall be considered in its actual social function, which constitutes the very essence of language, namely, as a means of communication, expressing the reflection of the material world by the human mind and its translation into forms of thought. For the essence of language is that "Language is a medium, an instrument with the help of which people communicate with one another, exchange thoughts and understand each other. Being directly connected with thought, language registers and fixes in words, and in words combined into sentences, the results of thought and man's successes in his quest for knowledge, and thus makes possible the exchange of ideas in human society."<sup>1</sup>

It is important to study language, and what is involved in the meaning function of language, just because it is, as Marx expressed it, "the direct reality of thought." Many errors are connected with the misuse of language. But if language itself is understood materialistically, then it is understood that such misuses of language do not arise merely from ignorance of semantics, but belong to the use of language as a tool of human association, and have their roots in human association.

The logical idealists have investigated semantics, the meaning function of language, only to falsify it. They have falsified it, in the first place, by the principle that the meaning of a statement is its mode of verification in experience, which leads to subjectivism and solipsism. And they have now falsified it, in the second place, by the doctrine that we give meaning to signs by stipulating rules of designation, i.e., by saying that there is an "entity," a certain thing, property or relation, which is designated by each sign to which a meaning is to be given.

Thus this idealist semantics represents a mixture of subjectivism and metaphysics. Considering language and its

<sup>1</sup> Stalin: *Concerning Marxism in Linguistics*.

formal structure in isolation from the real social function of language, it teaches, in the first place, that statement is limited to the recording and correlation of observations. It teaches, in the second place, that this recording and correlation of observations is to be done in terms of a rigid, metaphysical schematism.



## CHAPTER 16

### POSITIVISM IN SOCIOLOGY AND POLITICS

#### I. THE PROMISE OF "SEMANTIC DISCIPLINE"

A DISTINCTIVE feature of modern "logical" positivism is that it centres around theories about language—first about the logical principles governing the construction and combination of the various forms of proposition, and then about the rules for assigning a definite meaning to words and sentences. The latter part of positivist theory has appropriated to itself the name of "semantics." And a great deal has been claimed for semantics—much more than would appear from Carnap's recent logical treatises. For it is supposed not merely to be a "discipline" which helps to interpret and clarify science by analysing the semantical as well as syntactical rules of scientific language, but to be a new doctrine which can prove the salvation of humanity.

Before Carnap and his fellow "logical" positivists took it in hand and began to reduce it, after their own style, to the bare bones of a formal theory, there were already protagonists of the positivist brand of semantics in the United States who disseminated it in more popular form. One of the principal prophets of positivist semantics is Stuart Chase, who, in *The Tyranny of Words*, describes it as "heady, exciting stuff," and undertakes to tell his readers "what it has done for me personally in laying ghosts and sharpening meaning, and what it might do for men in general if enough of them could become acquainted with the discipline."<sup>1</sup>

Semantics has become a much abused word since the positivists took it over. In fact, their use of it is a good example of the very misuse of words which they claim it is their life's work to eradicate from human speech. In its scientific sense semantics is a part of the science of linguistics, namely, that part which deals with the meaning of words and sentences.

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, p. 10.

But in bestowing the name on a part of their own metaphysical theory in philosophy, the positivists entirely divorce semantics from the science of linguistics.

"Semantics is one of the important parts of linguistics," wrote Stalin, in his contribution to the recent discussion on linguistics in the Soviet Union. "The content of words and expressions is of serious importance in the study of language. Therefore semantics must be assured a fitting place in linguistics.

"However," he added, "in developing problems of semantics and in utilising its data, its significance must in no way be over-estimated, and still more—its use must not be abused."<sup>1</sup>

This branch of science, admittedly in a backward state scientifically, has suffered more than most by the substitution in it of preconceived theories for scientific investigation. In claiming semantics as their own, the positivists behave rather like people who, proclaiming that the earth is flat, appropriate the name "geography" for their deductions concerning its flat surface, and then say that human affairs cannot proceed unless the facts of geography are taken into account and regard it as their mission in life to warn people against falling off the edge of the world. Their abuse of semantics consists not merely in identifying it with a metaphysical and idealist theory in philosophy, but in claiming for it a vast practical significance as a discovery which can put men on the track of avoiding all manner of social difficulties. After all, the positivists argue, all social and political views and conclusions are expressed in words and combinations of words. And so they conclude that their "discoveries" about the "correct" use of language can also help to put us right in the handling of all human affairs without exception.

The misuse of language, which occurs when people do not understand the nature of the semantic rules which, according to the positivists, govern meaning in language, leads, it is asserted, to many social evils and social conflicts. For people do not merely talk nonsense, but they get emotionally carried away by it and fight one another about it, when if only they would talk sense and learn to understand one another their

<sup>1</sup> Stalin: *Concerning Marxism in Linguistics*.

conflicts could be smoothed over. Once get clear as to the meaning function of language, and get used to making only statements with a clear meaning, and conflicts will be resolved, fanaticism will be overcome. Hence the positivist theory of language and its meaning is brought forward, not merely as an abstract logical theory, but as a new weapon of social reform and an instrument for human progress.

Typical of the abuse of semantics is the way in which Stuart Chase, with the aid of what he calls semantics, diagnoses the causes of some of the principal ills afflicting contemporary capitalist society and propounds a method of cure.

Stuart Chase has always, so he tells us, been a reformer. Indeed, he was once a very active one. "As a young reformer," he writes, "I had organised meetings, written pamphlets, prepared lectures, concocted programmes, spread publicity with enthusiasm." But he became disillusioned, because he found that "the apathy of the unconverted was as colossal as it was baffling. As the years went by it became apparent that I was largely wasting my time. The message—and I still believe it was a human and kindly message—had not got through; communication was blocked."<sup>1</sup>

This disheartening experience led him to the conclusion that he was reforming the wrong thing, fighting the wrong enemy. If "communication was blocked," he decided that this must be due to a fault in the tools of communication—words. It was no use struggling for reforms if people could not understand you, and if you yourself did not possess the necessary technique for making what you had to say clear and comprehensible. What had first to be reformed was the use of words, and the enemy to be fought was "bad language."

"I had long been aware of the alarming futility of most of the literature dedicated to economic and social reform," he writes.<sup>2</sup> And so he ceased to dedicate his efforts to "economic and social reform" and dedicated them to semantics instead. Semantics could achieve the improvement of human relations which "economic and social reform" (in the United States at least) had failed to achieve.

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, p. 3.

<sup>2</sup> *Ibid.*, p. 2.

“ *The Name is not the Thing* ”

For Stuart Chase, it is a first principle of semantics that “the name is not the thing.”

“The senses of man,” he writes, “receive a sign from the outside world” and “to the thing which this sign indicates human beings in due course give a name. But the name is not the thing. The thing is nameless and nonverbal.”<sup>1</sup>

In expounding and developing this principle, Chase borrows extensively from the long book, *Science and Sanity*, written by Count Alfred Korzybski, who was, he informs us, “the first pioneer to help me,” and under whose guidance “I looked for the first time into the awful depths of language. . . .”<sup>2</sup>

At the bottom of these “awful depths” is to be dimly discerned the “space-time event” which is nonverbal, unspeakable and infinite in its awful complication. With the space-time event “the bottom has been reached; this is as far as the language mechanism goes. Below lie the meanings of undefined terms, which we somehow know but cannot tell: the nonverbal level, where one can point but cannot utter, the very threshold where the senses make contact with the outside world. This contact comes before language and cannot be spoken.”<sup>3</sup>

As a result of this contact with the senses, which cannot be spoken, the senses receive a sign, which is interpreted as the sign of the presence of an object—and to this object we give a name.

To have interpreted the sign given by the senses as the sign of an object is called by Korzybski and Chase the first level of abstraction. The second level of abstraction is to give the object a name. Then comes the third level of abstraction, when we connect with the name various “statements or descriptions,” designating properties of the object of immediate practical interest to us. Next, with the fourth level of abstraction, we make generalisations and inferences about all or some objects of a certain kind. And lastly, having got thus far,

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, p. 25.

<sup>2</sup> *Ibid.*, p. 4.

<sup>3</sup> *Ibid.*, p. 25.

"abstractions can break out in all directions . . . increasingly remote from the object. . . ."<sup>1</sup>

Chase gives as an example the case of a pencil. First there is a nonverbal space-time event, which Chase nevertheless tries to verbalise as "a mad dance of electrons." This makes contact with our senses, as a result of which we are aware of the presence of an object. (*First level of abstraction.*) Then we give the object a name, and say: "This is a pencil." (*Second level of abstraction.*) Then we begin to make statements about it, such as "This pencil is six inches long." (*Third level of abstraction.*) Then we begin to generalise about pencils, making statements such as: "Long pencils are better than short ones." (*Fourth level of abstraction.*) Finally, having once begun to generalise, we go on making abstractions of higher and higher orders, such as "Pencils are commodities," "Pencils are products of capitalist production," "Pencils are an essential element of human culture," and so on, and so on, each abstraction becoming "increasingly remote from the object clutched between my fingers."

How, then, does this semantical analysis tie up with the diagnosis of the present ills afflicting society?

Very simply, says Chase. Most of our troubles have their roots in a failure to understand the semantical nature of the higher-order abstractions. People do not understand that "the name is not the thing," and instead identify names and things. So they believe that all the higher-order abstractions to which they give utterance are real things. And believing this, they behave accordingly—with disastrous results.

"Abstract terms," says Chase, "are personified to become burning, fighting realities."<sup>2</sup> He gives a whole list of them—the Fatherland, the Nation, the Flag, the Constitution, the Law, Progress, Fascism, Communism, Liberty, the Masses, Capital and Labour, Wall Street. . . . People mistake these abstract words for things, and then they begin to fight one another, either for or against these "fabulous concepts," and terrible "conflagrations" are started.

"Yet," says Chase, "if the knowledge of semantics were general, and men were on guard for communication failure,

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, pp. 56 ff.

<sup>2</sup> *Ibid.*, p. 13.

the conflagration could hardly start." For "if people were armed with semantic understanding, such fabulous concepts could not arise."<sup>1</sup>

One example which he gives of the dire results of semantical error is the occurrence of anti-semitism. "The long agony of the people labelled 'Jews' is largely caused by semantic confusion," he writes.<sup>2</sup> So the cure for anti-semitism is to give all the fascists and their dupes a course in semantics. And then we shall find that both fascism and anti-fascism are semantical errors as well. Presumably American lynchings, too, are caused by semantical confusions concerning the word "Nigger," and the activities of Senator McCarthy by semantical confusions concerning the word "Red."

It appears, then, that men are set at loggerheads with one another, and so come to manage their collective affairs very badly, because of their lack of understanding of the semantical nature of their own language. Indeed, men are the victims of a tyranny—a tyranny created by themselves, the tyranny of words. "Bad language," the personification of abstractions, is the root cause of much evil, and at the same time "most of the literature dedicated to economic and social reform" has demonstrated its "futility" by failing to attack this evil at its root. It is semantics that must come to the rescue, undertaking the noble mission of destroying the tyranny of words and so setting men free to live together in peace and amity.

### *"Find the Referent"*

Just as semantics has penetrated to the cause of our troubles by its discovery that "the name is not the thing," so it propounds their cure in the slogan—"Find the referent."

"The point of every discussion," writes Chase, "is to find the referent. When it is found, emotional factors dissolve in mutual understanding. The participants are then starting from a similar foundation, talking about similar things. The disagreement, if it must arise, is grounded on a firm base. It is easier, of course, to find the referent for 'oxygen' than to find referents, one or more, for 'liberty' or 'feudalism.' If

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, p. 15.

<sup>2</sup> *Ibid.*, p. 230.

referents for a high-order abstraction are impossible to find, further discussion is futile. If referents are difficult to locate, that is a bother. But they must be found."<sup>1</sup>

The admonition to "find the referent" does not mean, however, that we must pursue the reference of every word and statement right down to the "awful depths" of the "space-time event." It means that we must pursue the reference down to the first level abstractions—the objects signified by the signs received by our senses. Finding the referent means that we must name the objects which we are talking about, the properties which we assert them to have and the relations in which we assert them to stand.

Thus: "We frequently use the abstraction 'mankind.' What is the referent? Depending somewhat on the context, or the way we use 'mankind,' the referent is every person who ever lived, or every living person, or a sample study of enough persons to warrant limited conclusions about all persons. On the basis of persons living today, the referents are Adam<sub>1</sub>, Adam<sub>2</sub>, Adam<sub>3</sub>, up to about Adam<sub>2,000,000,000</sub> . . . Yet how often in using the term have you completely overlooked the parade of Adams, a file of men, women and children two billion strong which, if marching one foot apart, would stretch fifteen times round the equator? This is your referent. Too often have I forgotten it, and used 'mankind' as a lever to promote a private concept of what I wanted men to do or be. There is no entity 'mankind.' Call as briskly as you may, 'Hey, Mankind, come here!' and not an Adam will answer."<sup>2</sup>

From all this Chase concludes:

"A good semantic discipline gives the power to separate mental machinery from tangible events; makes us conscious of abstracting; prevents us from peopling the universe with non-existent things. . . .

"Abstractions we must use. But as we use them, we should look as it were over their edges and ask:

*"What is really happening out there?"*

*"How do the facts hang together out there?"*

*"What are people really doing out there?" . . .*

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, p. 68.

<sup>2</sup> *Ibid.*, p. 69.

"Beware of eternal certainties. . . . Look to the context. Find the referent. . . .

"The promise of semantic discipline lies in broadening the base of agreement. . . . Good language alone will not save mankind. But seeing the things behind the names will help us to understand the structure of the world we live in. Good language will help us to communicate with one another about the realities of our environment, where now we speak darkly in alien tongues."<sup>1</sup>

## 2. ABSTRACTIONS AND REALITIES

Stuart Chase wishes to make out that the "semantic discipline" leads back to concrete realities from meaningless abstractions. But is this in fact the case? On the contrary, the very opposite is the case.

When Chase was, as he informs us, a "social reformer," he was concerned with concrete realities and with the struggle to change them. But he turned away from social reform and decided to try to reform language instead. He turned away from the job of trying to understand social reality in such a way as to change it and took refuge instead in general theorising about words.

This means that he did just what he says semantics teaches not to do. He turned away from reality to "high order abstractions" about words. For semantics is, indeed, a very "high order" abstraction. It is a turning of the mind inwards to speculative generalisation about the tools of thinking, away from thinking about real things.

And this turning away was a crossing over. Chase left the camp of the friends of labour struggling against the tyranny of capital, on the pretext that the tyranny of capital was only a phrase and the real tyranny was "the tyranny of words." This meant that he left the one camp and joined the other. He became, as will appear clearly enough in the sequel, a mouthpiece of reaction. Where real tyranny exists—and the tyranny of monopoly capital is real enough—no-one can render it a better service than to say that it does not exist, that it is a mere phrase, and that men are enslaved, not by

<sup>1</sup> Stuart Chase: *The Tyranny of Words*, pp. 247 ff.



other men, but by the words they use. This is the service that semantics renders to reaction today.

In performing this service, semantics is led to attribute a quite remarkable power to words.

Positivists who dabble in semantics are fond of commenting on the errors of primitive "word-magic." But they seem themselves to share the belief in this magic. How else could Chase believe that the use of the word "Jew" had power to have caused "the long agony of the people labelled 'Jews'?"

Chase stresses the power of all sorts of abstract words to influence social behaviour. This semantic doctrine has also become a commonplace nowadays in much of the latest "social psychology," which is being extensively peddled in the U.S.A. In his *Handbook of Social Psychology*, Kimball Young devotes much attention to the social role of the "stereotypes, clichés, slogans and myths" which make up the content of "ideologies."<sup>1</sup>

Examples of stereotypes are such words as "nigger" and "bolshhevik," which are used in America to lash people into fury against "groups" which are labelled by these stereotypes. As for myths: "The most sweeping and dynamic economic myth of the 19th century, of course, was that developed by Karl Marx and Friedrich Engels."<sup>2</sup> (Note here the use of the cliché, "of course.")

Kimball Young says that words used in these ways play a key role in fomenting "human conflict." "A prejudice," he writes, "is a composite of stereotypes, myths and legends in which a group label or symbol is used to classify, characterise and define an individual or a group considered as a totality. . . . The function of prejudice is to facilitate the segregation of opposing groups from each other."<sup>3</sup>

It is quite true that many abstract words do play an important and remarkable social role. We must examine this role.

Chase says, and Kimball Young and others have developed the point in terms of "social psychology," that abstractions get a grip on men's consciousness and lead them to irrational

<sup>1</sup> Kimball Young: *Handbook of Social Psychology*, p. 197.

<sup>2</sup> *Ibid.*, p. 219.

<sup>3</sup> *Ibid.*, pp. 257-8.

behaviour productive of many social evils and much human suffering. But this role of abstract words, this "tyranny of words," is no new discovery of semantics. It has been recognised for a long time, and eloquently expressed by many progressive writers—by William Blake, for example, when he wrote:

In every cry of every man,  
In every infant's cry of fear,  
In every voice, in every ban,  
The mind-forged manacles I hear.<sup>1</sup>

But whence these "mind-forged manacles," and to what do they owe their power? Is it because of the improper use of language and men's ignorance of semantics? Blake was a poet who never gave a thought to semantics, but he already knew better than that. These "mind-forged manacles" are the reflection in men's consciousness of the material conditions of their social existence. And the "manacles" which Blake was writing about, and which still attract the attention of Stuart Chase and others in the United States of America, were produced by and owe their influence to—as Blake knew, and expressed in some of his poems—the exploitation of man by man.

Why do words enslave? It is because some men enslave others, and use words to further this oppression, to further the exploitation of man by man, to express ideas corresponding to it, justifying it, furthering its ends, and constituting an ideology which binds not only the oppressed but also the oppressors.

"Why, if we must have principles," asks Stuart Chase, "do many of them have to be so cruel in their tangible effects, and so badly timed for what is happening in the real world now? I think one important answer is found in the structure of the language we use."<sup>2</sup>

Stuart Chase's answer to the question why there are principles "cruel in their tangible effects" is that "the structure of the language we use" allows of the production of meaningless abstractions, which we then mistake for "things," with cruel results. The way out, he says, is to study the structure of language and to use it better.

<sup>1</sup> William Blake: "London," in *Songs of Experience*.

<sup>2</sup> Stuart Chase: *Loc. cit.*, p. 79.

But these "cruel principles" are only meaningless from the point of view of an abstract positivist philosophy, which turns its back on social realities. In fact they express a cruel reality. And the way to combat them is to understand and change the reality of which they are an expression.

This fundamental point concerning what Chase calls "high order abstractions" and "fabulous concepts" and their criticism, was already trenchantly stated by Marx in one of the earliest of all his writings—the *Critique of Hegel's Philosophy of Law*, published in the *German-French Annual* in 1844. In that essay Marx began by dealing with the abstractions of religion—a set of "high-order abstractions" which are "personified" in what Marx called "the fantastic reality of heaven."

"Man makes religion, religion does not make man. . . . Man is the world of men, the State, society. This State, this society produces religion. . . . The abolition of religion, as the illusory happiness of the people, is the demand for their real happiness. The demand to abandon the illusions about their condition is a demand to abandon a condition which requires illusions. . . . Thus the criticism of heaven is turned into the criticism of earth . . . and the criticism of theology into the criticism of politics."

Marx went on to apply the same method of criticism to the abstractions of Hegel's philosophy of law and to the Hegelian theory of the State.

The criticism of these abstractions, he said, must be based on "the critical analysis of the modern State and of the realities bound up with it."

The Hegelian abstractions about "law," about "jurisprudence" and about "the State," were, he said, nothing but an "abstract and transcendental conception of the modern State." And he described them as a "dream history" which philosophers had superimposed on the real history of their country. He concluded: "The German people must therefore include this dream history of theirs among their existing conditions, and subject to criticism not only these conditions but at the same time their abstract continuation."

That was how Marx attacked the harmful abstractions of his time. Semantics, setting out to attack and demolish such

abstractions a hundred years later, just as if this were a new idea and no-one had ever done it before, refrains from attacking their real basis. It may urge us to "look over their edges," but it never looks under them.

Korzybski, whom Chase admires so much, said in his *Science and Sanity* that we were in danger of insanity, and were actually driven to insane behaviour, because of the way we use words. So the cure for the "insanity" of the modern capitalist world was to reform our use of words. He got things exactly the wrong way round. The irrational use of words reflects the irrational society, it is not the cause of the irrationality of society. Men's consciousness expresses their existence. And the criticism of illusions is the criticism of the "condition that requires illusions."

This explains Chase's sophistry about the Jews, for example. The use of the word "Jew" for incitement to Jew-baiting follows from social conditions in which pogroms are required for definite political ends. The pogroms are not caused by the semantical errors of those who incite them and participate in them, nor will they be ended by any course in semantics. Indeed, it is a fact today that quite influential and powerful circles of the ruling class of the United States regard the semantic theories of the positivists with definite approval; but we have yet to find that this makes any difference to anti-semitism and to lynchings in the United States.

This criticism of the semantical doctrine about "high-order abstractions" makes it clear that positivist semantics is able to exercise a certain appeal to some progressive-minded though gullible people by building up the semblance of a case based on fact—namely, the fact that certain abstract words do play a role in expressing men's "illusions about their condition" and in giving utterance to what Chase calls "principles cruel in their tangible effects and badly timed for what is happening in the real world now." It would seem, then, that semantics is doing a useful service in exposing this fact and debunking these words.

But the trick which positivism plays is to direct attention to abstract words while refusing to attack the real conditions of life which give rise to the abstractions which it finds so harmful. It does not look for the reality which the abstractions express,

but regards abstract words as merely meaningless. Chase calls them "semantic blanks," because they are "without discoverable referents," and says that whenever we use such an abstract word we might just as well say "blab, blab."<sup>1</sup> And then he supposes that these meaningless "blabs" have an extraordinary power of determining our actions and the whole way we organise our social affairs.

Moreover—and to this point I shall return again presently—when positivism regards abstractions as meaningless "blabs," because it does not consider how they express realities, it entirely fails to consider the way we use, and must use, abstract terms, not to express illusions, but to express scientific truth.

Our consciousness of the world is always expressed in general concepts; and the division is not between the use of abstractions and the avoidance of abstractions, but between concepts which express illusions about our condition and those which approximate to truth. But for positivism, the more we generalise, the more "remote" we are from "the referent." Hence its attack upon abstractions, which purports to be an attack upon harmful, misleading abstractions, is in practice turned into an attack upon scientific ways of thinking.

### 3. APPLICATION OF POSITIVIST SEMANTICS

I now want to consider some of the applications and consequences of positivist semantics. For the semantic doctrine about abstractions, and the semantic criticism of abstractions, is in fact quite extensively used. It is used to avoid the reckoning with the realities expressed by these abstractions, and to falsify them and cover them up.

Chase says—"Search for the referent." But he has a semantic prescription for covering it up and preventing you from finding it.

#### *"Unspeakable Reality"*

(1) In the first place, there is the semantic doctrine of the lower depths. The reality is the "unspeakable" space-time event. Here positivist theory coincides with the old irrationalist-relativist doctrine of the mysterious and unknowable thing-in-itself. Chase says we must "face the world

<sup>1</sup> Chase: *The Tyranny of Words*, p. 13.

outside." But for positivism the truth about "the world outside" is "unspeakable." The only "referent" which we can find is an abstraction of our own making, corresponding to some "sign from the outside world" received by our senses. It is an isolate torn from its context, and the context is unknowable and unspeakable.

A good example of the application of the semantic doctrine of unspeakable reality and levels of abstraction, and of the type of conclusion this doctrine gets used to justify, is afforded by an American book which recently gained a little notoriety—*The Road to Survival*, by William Vogt. This is a book about the spoliation of land and destruction of natural resources. Vogt's thesis is that human population has increased faster than the means of subsistence (no very new thesis, this); that we have been plundering the land, undermining its fertility and destroying natural resources; and that, therefore, if humanity is to survive, we must do two things—control and reduce population and restore natural resources. In the course of arguing this case, Vogt introduces a whole chapter about semantics.

"A factor limiting the sound use of natural resources," says Vogt, is "the lack of consciousness of abstraction" and corresponding misuses of language, which "have so shaped our thinking and, therefore, our treatment of our land and associated resources that they often exert as powerful an influence as rainfall and soil structure. As the basis of sound resource management, the necessity of recognising and rejecting these mistaken notions can scarcely be over-emphasised."<sup>1</sup>

Vogt, applying semantics, points out, first of all, that the land is "unspeakable reality."<sup>2</sup> But, he says, we generalise about this unspeakable reality in terms of all manner of high-order abstractions, such as "forest land," "range," "watershed," "corn land," "real estate," and so on. And from these abstractions flows the endless spoliation of the land which goes on in the United States. From talk about "forest land," timber resources are denuded; from talk about "corn land," fertile areas are reduced to a dust bowl; and so on. So it is of the first importance, says Vogt, to criticise these harmful

<sup>1</sup> W. Vogt, *The Road to Survival*, p. 56.

<sup>2</sup> *Ibid.*, pp. 48 ff.

abstractions in the light of a "sound" semantics, and to realise that the real land is not forest, watershed, corn land or real estate, but is something unspeakable.

Vogt uses this abuse of semantics to justify the conclusions of his book. In actual fact, semantics is abused by him in two ways. First, in making abstractions and lack of consciousness of abstraction "a factor limiting the sound use of natural resources," he has conveniently obscured the circumstance that it is the anarchic system of "private enterprise" that has led to the wholesale spoliation of American land, and that the types of harmful generalisation which he condemns express precisely the points of view of the various interests (timber interests, corn growers, real estate, and so on) which arise within that system. So he puts down to "bad language" something which is really the result of a bad social system, and substitutes the criticism of abstractions for the criticism of the social realities behind the abstractions.

Secondly, having turned the land and its resources into an unknowable thing-in-itself, he rules out the possibility of a science which really understands these resources and their inter-relationships and how to transform and develop them to meet the growing needs of mankind.

That there really is such a science, and that it can be applied when the rapacious private interests which express themselves through Vogt's abstractions are swept aside, is shown by the example of what is taking place in the socialist Soviet Union. Here, in the very year (1948) that Vogt's gloomy prophecies were published in the U.S.A., was published a fifteen-year plan to transform nature throughout the entire southern area of the European part of the U.S.S.R. by a system of forest shelter-belts, crop rotations and construction of ponds and reservoirs; the aim being to develop and transform the natural resources of that very large area so as to ensure more of the fruits of the earth to a rapidly expanding population.

Instead, Vogt offers the advice that we shall try to "restore" those mysterious resources which have already been dissipated and shall reduce the human population to numbers which the unspeakable land will perhaps be better able to support.

To end anti-semitism, Chase proposed courses in semantics. To end land erosion, Vogt proposes, not only courses in

semantics, but also courses in birth control. With the aid of semantics he seeks to make plausible some of the most reactionary ideas it is possible to imagine—the unknowability of the earth's resources, the limitation of its resources that can be used by man, and the need drastically to limit the numbers of the human race.

This is an example of what the admonition to "search for the referent" comes to mean in practice. For positivist semantics is a doctrine of the unknowability of the real world and a doctrine of abstraction which serves to obscure the knowable reality which is expressed in abstractions. For this reason, the positivist theory of semantics, which claims to be an antidote to all manner of false generalisations, in practice becomes a support for all manner of false generalisations.

### *The Semantical Metaphysics*

(2) Along with the doctrine of the unspeakable reality which lies at the bottom of the "awful depths" of language, Chase, when he begins his "search for the referent," evolves from his semantics a system of the metaphysical way of thinking. It is here that the semantics of Korzybski and Chase coincides with the formalised "pure semantics" of Carnap. The "search for the referent" coincides with the formulation of "rules of designation."

Reality, according to the positivist philosophy, is unknowable and unspeakable. Nevertheless, we have to speak about it, and semantics teaches us to speak about it in a metaphysical way. We use words and have to give them meaning, and we give them meaning by rules of designation which apply them to metaphysical entities. The metaphysics which lies at the heart of the positivist semantics finds expression in the doctrine that the "referents" for which we have to "search" consist exclusively of the "first order abstractions" which are signalled to us by the "signs" received by our senses. This in turn develops into an all-out attack upon scientific ways of thinking.

Chase allows himself to speak about "unspeakable reality" as "a mad dance of electrons." Actually, however, this "dance" is neither "unspeakable" nor "mad." It is organised in knowable processes, in physical systems and in



living organisms; some of the living organisms, men, are organised in societies, in institutions and social movements; and all of these have their comprehensible laws of motion. We speak of them in terms of general concepts, and in terms of those general concepts we formulate our knowledge of their interconnections and laws of motion.

But not so for positivism. For positivism reality is unspeakable and unknowable, and most general concepts are meaningless abstractions. Hence, instead of trying to formulate and generalise scientific knowledge of objective reality, of the real material world and its dialectical movement and interconnection, positivism calls upon us to refer in everything we say to a metaphysical scheme of particular things, with their qualities and relations, the "signs" of which we are said to receive in our immediate sense data. Real processes, for positivism, are unknowable—"unspeakable" and "mad"; and for the knowledge of them it substitutes this metaphysical scheme.

### *Positivism and Sociology*

Where this leads when it is applied to the interpretation of the physical sciences I shall examine in the next chapter. Here I shall direct attention to the field of applied semantics in which Chase specialises—the application of semantics in the field of sociology.

Positivism with its semantical theories, as I have indicated, claims to come to the rescue of suffering humanity by teaching us how to avoid "bad language" when speaking of our own affairs. Its prescription is to "search for the referent," and the referents are Adam<sub>1</sub>, Adam<sub>2</sub>, Adam<sub>3</sub>, . . . up to Adam<sub>2,000,000,000</sub>.

As a matter of fact all these "Adams" are born into a social organisation, whose basis is their social relations of production. "In the social production which men carry on they enter into definite relations that are indispensable and independent of their will. . . . The sum total of these relations of production constitutes the economic structure of society—the real foundation, on which rise legal and political superstructures and to which correspond definite forms of consciousness."<sup>1</sup> The

<sup>1</sup> Marx: *Critique of Political Economy*, Preface.

"Adams" participate in families, states, social institutions, social movements, whose activities are the activities of "Adams" in association and are independent of the will and inclinations of particular "Adams."

If, then, we wish to understand social affairs—and particularly if we wish to understand social affairs so as to direct them—we must refer, not only to all the "Adams" and the kind of things which each of them do, but to the economic systems, the classes and class relationships, the institutions, states and so on, which arise out of the social production of the "Adams" and out of their relations of production, to the laws of motion of these products of the associated "Adams" and to what effect they have on the life and activity of the particular "Adams." But for the semantic theories of the positivists, these are all "high order abstractions" and so cannot be "referents"—the "referents" are the particular "Adams," and whatever we say about human affairs must be reduced to statements about Adam<sub>1</sub>, Adam<sub>2</sub>, Adam<sub>3</sub>, up to Adam<sub>2,000,000,000</sub>.

Here positivism has produced a formula the significance of which is precisely expressed in the old saying, "not to see the wood for the trees." Its application produces remarkable results.

The principles of the application of positivism in sociology were outlined by the late Otto von Neurath in an article in the American *International Encyclopædia of Unified Science*, entitled *Foundations of the Social Sciences*.

Neurath inveighs against attempts to describe and explain historical events in terms of high-order abstractions. For instance, he says, cases of wars and conquests are often described by historians ignorant of semantics in such terms as these: "Forced by its historical mission, the nation started to spread its civilisation." Here, he says, are three well-nigh meaningless abstractions. The correct account of such an event, Neurath maintains, would be rather as follows: "One human group killed another and destroyed their buildings and books."<sup>1</sup> That is to say, we "search for the referent," and we find that what we are talking about is that members of one group of Adams set on members of another group of Adams, killed them, and destroyed their buildings and books.

<sup>1</sup> O. Neurath: *Foundations of the Social Sciences*, p. 7.

Here Neurath's criticism of the abstraction about the "historical mission" and "civilisation" seems justified. But why? Not because they are abstractions, but because they are idealist abstractions employed by reactionary historians. Neurath, however, is against abstractions in general, and wishes to replace them by bald statements about the actions of particular men. The outcome is that he is able to say that there are wars in which men kill one another and destroy buildings and books; but he is not able to say why such wars happen, which wars are just and which unjust, how wars are determined by economic factors and class interests, and what part the various human institutions play in them. From the point of view of understanding wars and their causes and how to prevent them, he is as much in the dark with his semantics as the other idealists were with their own abstractions.

The theoretical and practical impotence and absurdity of the conclusions of positivist semantics in sociology are shown even more vividly in the next example Neurath takes of the semantically "correct" formulation of "a sociological principle." This time it concerns the "mission of civilisation," not of one nation to conquer another, but of man to conquer nature. Neurath says we should talk like this: "Milleniums ago, when a swamp and a human group met—the human group vanished, the swamp remained; now the swamp vanishes, the human group remains."<sup>1</sup>

Let us consider this remarkable statement of a "sociological principle." One of the places where today there is a marked tendency for swamps to vanish and human groups to remain is the Soviet Union. This is because the people of the Soviet Union, organised on the basis of socialist planned economy, armed with socialist science and technique, and carrying out their Five-Year Plan, are systematically draining swamps. On the other hand, as will be discovered by consulting William Vogt, in the United States of America a different process is to be observed. There it has happened that human groups have vanished and dust bowls have remained. But with the aid of semantics it is possible only to formulate "sociological principles" which state what happens to particular collections of "Adams" when they walk into a swamp or find themselves

<sup>1</sup> O. Neurath: *Foundations of the Social Sciences*, p. 20.

living in a dust bowl. It is not possible to analyse the real economic and social determinants of the vanishing of swamps and appearance of dust bowls. This is as much as to say that sociological principles, genuine sociological science, are ruled out by semantics.

After this it is not surprising to find that Neurath ended his inquiry into the "foundations of the social sciences" by likening the present condition of humanity to that of "sailors far out at sea," in a "clumsy vessel" amidst "heavy gales and thundering waves." And he concluded: "The whole business will go on in a way we cannot even anticipate today. That is our fate."<sup>1</sup>

The positivist application of semantics in sociology thus ends in complete theoretical and practical helplessness and bewilderment. For positivism the real processes of social life lie in the "awful depths," and are unknowable, unspeakable and mad. They are unpredictable and unaccountable, and beyond the scope of scientific understanding or rational management.

Neurath's essay on the methods of eliminating abstractions from sociology had the value that it crystallised in a peculiarly absurd form the essential features of the whole positivist philosophy in its application to social questions.

The very essence of the positivist theory of knowledge is that it limits knowledge to particular facts of observation and to the correlations of such facts, and denies the very possibility of knowing the real interconnections and movements in the objective world, independent of man's observations, which underlie and determine those particular facts. And the very essence of the positivist logic is that it rules out all internal, necessary connections between things and events in the objective world and reduces them to the external and accidental coexistences and sequences of particular observed facts.

But where is it that the discovery and tracing out of the real interconnections and movements of things, of their necessary and internal connections, of the objective basis of observed facts and events, is most undesirable and most dangerous from the point of view of the ruling bourgeoisie, of which the positivist theory of knowledge and logic is a philosophical expression? Precisely in the social sphere, in

<sup>1</sup> O. Neurath: *Foundations of the Social Sciences*, p. 47.

the sphere of sociology. In this sphere it becomes most undesirable and most dangerous to prosecute any profound scientific enquiry—for such an enquiry, as Marxism abundantly demonstrates, leads straight to the exposure of capitalist exploitation and its consequences, reveals the laws of development of capitalism and its inevitable decline and fall, and transforms itself into a political programme for the exploited classes to use in the struggle to replace capitalism by socialism.

It is natural, therefore, that the bourgeois sociologists should always have done precisely what the semantical theories of the logical positivists now say they should do—withdraw from the prosecution of such enquiries and limit themselves instead to the study of particular facts and correlations of facts, to the study of the surface appearances of society and not of its basis, contradictions and laws of development.

All this was duly noted by Marx, when he wrote that “vulgar” bourgeois economics “deals with appearances only” and “seeks plausible explanations of the most obtrusive phenomena for bourgeois daily use.”<sup>1</sup>

All that the recent positivist philosophers have done is to systematise the old methods of “vulgar” bourgeois sociology into a “new” theory of logic and semantics, thus giving those methods a philosophical sanction and attempting to refurbish them by representing them as the latest outcome of scientific philosophy.

The result of the application of the latest semantic philosophy to the investigation of the “foundations of the social sciences” is a complete failure to throw any new light on the foundations of the social sciences. This was only to be expected. For in its sociological aspect, that philosophy is merely a new-fangled expression of the methods which the vulgar bourgeois sociologists have been employing for the past hundred years.

### *The Defence of Things as They Are*

The semantic theories of the positivists seek to make out that all general concepts are meaningless, oblivious of the fact that it is only in terms of general concepts that we can understand real events and their causes. This leads to complete inability to understand events. But it leads to worse than that.

<sup>1</sup> Marx: *Capital*, Vol. I, ch. 1, section 4, footnote.

Amongst other examples of "bad language" selected by Stuart Chase for reprobation was the use of the word "fascism." This is only a word, says Chase, and a meaningless one. The semanticist, he explains, is prepared to recognise the occurrence of such events as groups of "Adams" wearing brown or black shirts setting upon and beating up others whom they label Marxists or Jews: and if such events occur, the semanticist may be prepared to intervene. But he does not recognise "fascism." "He refuses to shiver and shake at a word, and at dire warnings of what that word can do to him at some unnamed future date."<sup>1</sup>

Chase wrote that in 1937. Within a few years, as it happened, the "dire warnings" came true. It amounts to this, that the semanticist is prepared to recognise—indeed, he can hardly help it—the consequences of the unchecked growth of fascism when they occur; but he is not prepared to recognise fascism as a social phenomenon which gives rise to those consequences, or to "label" as fascists the persons who are participating in the fascist movement and advocating and pursuing fascist policies. Nor, in consequence, is he prepared to do anything to oppose and check the growth of fascism; and if others call attention to the danger and demand that action be taken, he accuses them of semantical confusion and of "shivering and shaking at a word."

This semantical attitude to fascism was forcibly commented upon by Professor Barrows Dunham in the chapter on semantics in his book, *Man against Myth*.

"Whenever a man or a movement exhibits all or most of the usual fascist ideas and is named accordingly, some semanticist is sure to arise and pronounce the naming meaningless. The left wing has its labels, he will say, no less than the right; and both sets of labels lack content. Such 'impartiality' is mere show. In reality it protects the fascists by enabling them to escape public identification, and it injures the anti-fascists by an accusation of word-mongering. It is now scarcely possible to gather men together on behalf of human welfare, without someone's blocking the whole programme by a complaint of 'semantic confusion.' If we were to apply to the semantic philosophy one of its own favourite tests, the operational, we

<sup>1</sup> Chase: *The Tyranny of Words*, p. 132.

should find that its real meaning, abundantly demonstrated in practice, is defence of things as they are.”<sup>1</sup>

That this line of semantic “criticism” is no mere fad of armchair philosophers, but serves political ends, exactly as Barrows Dunham states, has already been shown in discussions at the United Nations. In June, 1948, a proposal was moved in the Human Rights Commission of the United Nations Social and Economic Council that the United Nations should prohibit all fascist activities and organisations as a menace to human rights. This was opposed by the American delegate, who carried the majority with him, on the ground that the concept of “fascism” was so unclear that the prohibition would be meaningless. The Soviet delegate tried to explain the meaning of the word, but was overruled for using “bad language.”

In similar style, those who are now betraying the interests of their own nation to a stronger power, or are by force or fraud urging other nations to give up their sovereignty, can claim that such concepts as “nation” and “national sovereignty” are mere abstractions which it is not worth defending. And they can add, like the prophet of the “managerial revolution,” James Burnham: “Independence and freedom are after all abstractions.”<sup>2</sup>

### *Point of View on Human Conflicts*

Another aspect of the application of the positivist idea of semantics is revealed in Chase’s idea that semantics gives a recipe for resolving human conflicts—that if we will only follow the prescription to “search for the referent,” then “emotional factors dissolve in mutual understanding.”

How bitterly men fight one another, exclaims Chase, in the name of high-order and virtually meaningless abstractions, such as “labour and capital,” the “profit system,” “capitalism,” “socialism,” “communism,” “fascism” and so on. If only they could be brought to understand the semantic criticism of these “fabulous concepts,” then they would realise that there is nothing to fight about.

To take a simple example, consider a dispute, such as is of

<sup>1</sup> Barrows Dunham: *Man against Myth*, p. 193.

<sup>2</sup> James Burnham: *The Struggle for the World*, p. 201.

very common occurrence, between workers and employers. What is the semantic prescription for settling this dispute? It is most fitly enunciated from the mouth of the employer, who says: "Let us forget all this talk about 'labour' and 'capital' and 'profits' and 'exploitation,' which are meaningless inventions of political agitators who play on your emotions. Let us talk as man to man, as 'Adam' to 'Adam,' and try to understand one another." This is, indeed, how the employers very often do argue. They know how to play tricks with words without waiting for the positivists to turn it into a "science."

But has this application of semantics really removed the grounds of conflict between workers and employers? It has not, for the conflict is grounded precisely in the relations between labour and capital, in the capitalist system of exploitation. All that has been done is to obscure the grounds of conflict by verbal trickery.

The truth is in this case—and the example can be generalised—that the positivist semantic version of the issues under dispute is precisely the version of one side of the dispute, the side of the employers, the side of the capitalist class. From the point of view of the capitalist class, there are Adams who sit on boards of directors and Adams who work at the bench; there are Adams who receive salaries and dividends and Adams who receive weekly wages; but there is no exploitation and there are no contradictions of capitalism.

Thus under the guise of the "search for the referent," under the guise of objectivity, impartiality and the rejection of meaningless abstractions, positivist semantics teaches us to view human affairs from a point of view which is neither objective nor impartial, which utterly fails to refer to the realities of class society but obscures them with tricky phrases—the point of view of the capitalist class.

Such is the semantic prescription for calming our emotions and dissolving human conflicts.

The truth about things is not to be gained by any verbal prescription which tells us to speak only about some fixed system of particular objects and their relations which semantics selects as "referents," but is to be gained in the practice of seeking to change reality. And then we express what we find



out in terms of general concepts. Dialectics, as opposed to the metaphysical schema which have been taken over by the positivists, comprises the art of working with such concepts.

The truth about social affairs is discovered by those who are trying to change society, and who for that very reason are not content to talk about Adam<sub>1</sub>, Adam<sub>2</sub>, Adam<sub>3</sub>, up to Adam<sub>2,000,000,000</sub>, but seek to formulate accurate concepts of social and economic relations and of the contradictions contained within them. The objective truth about capitalist society cannot be "impartial" and cannot serve to "dissolve" the basic contradictions and conflicts of that society. For to seek for that truth, i.e., to investigate capitalist society in its real existence and movement in order to change it, is by its very nature a partisan activity, which uncovers the contradictions and does not cover them up. The truth belongs to the revolutionary working class movement and is expressed in the "high-order abstractions" of the theory of that movement.

The prescriptions of positivist semantics, as Barrows Dunham has pointed out, amount to a "defence of things as they are." In their time those who have theorised about society from the point of view of the capitalist class have invented many "high-order abstractions" of their own, which served to obscure the real issues of the social struggle and to paint over the ugly facts of capitalist exploitation with a coating of verbal whitewash. Some of this whitewash is wearing a bit thin. The semantic apologists of capitalism have now come forward with a new scheme. Examine words, they say. Give the facts a double coating of whitewash, not only with words but with words about words.

And this word-mongering of the positivists is also admirably adapted to the defence of things as they are in other ways.

(1) It enables them to accuse those who try to speak the truth of using meaningless abstractions.

(2) It enables them to make out that every evil arising from the workings of capitalism does not arise from the workings of capitalism but from verbal confusions.

(3) It enables them to make out that the whole struggle against capitalism and for social progress is likewise the result of verbal confusion and can claim support only by playing on verbal confusions.

And (4) it prescribes a way of speaking about social affairs which renders the real movement of society, its structure and the causes which operate unknowable and inexplicable. For that very reason it is perfectly adapted to express the viewpoints of the capitalist class at a period when that class has nothing left to contribute to human progress, but is helpless in the throes of a general crisis of its own making and from which it cannot possibly escape. And it does all this while posing as the very latest scientific method of thought, opposed to useless or harmful abstractions and refusing to be taken in by them.

### *Anti-Thinking Philosophy*

To sum up the argument.

Since general concepts, expressed in abstract words, are a necessary component of thinking; and since thought proceeds not only by paths of truth but also by paths of error; it is not surprising that there are abstractions and abstractions—abstractions which are the vehicle of knowledge, and abstractions which are the vehicle of illusion and fantasy. Moreover the distinction is not absolute. For illusion has a basis in knowledge of reality, and, on the other hand, truth may contain an element of illusion.

Positivism, pretending to criticise the use of abstractions to propagate illusions, attacks the use of abstractions in general. They are all, it says, illusory. In consequence it attacks the general concepts in which are expressed our knowledge of reality, and says that they are illusions. It concludes that reality is unknowable and unspeakable.

“The ideal,” said Marx, “is nothing else than the material world, reflected by the human mind, and translated into forms of thought.”

Positivism denies altogether that “the ideal” is the reflection of the material world. The “forms of thought” in terms of which the material world is translated in our thinking are constituted out of general concepts. In its attack on general concepts, and in its doctrine of the unknowability of the material world, the positivist semantics attacks and stultifies the very activity of thinking. It is an anti-thinking philosophy. In fact, it is irrationalism in its most pronounced and extreme form.

At the same time as proclaiming the world unknowable and attacking the use of general concepts, positivism, under the slogan of "search for the referent," advocates a scheme of the metaphysical way of thinking the most barren and abstract imaginable. Thus, for example, it bids us think of human affairs in terms of the schema "Adam<sub>1</sub>, Adam<sub>2</sub>, Adam<sub>3</sub>, . . . Adam<sub>2,000,000,000</sub>"; that is to say, in terms of the extremely bare abstraction of "Adam"—the particular human individual—instead of formulating concepts of the social activities, organisations and relationships which in reality determine the course of human affairs.

We can neither think nor speak without using abstractions. Positivism does not show how we can do so. It succeeds only in advocating a metaphysical use of abstractions, which renders it impossible to understand the inter-relations and movement of real processes. It is this metaphysics which proclaims reality unknowable and renders those who make use of it incapable of rational and scientific thinking.

Positivism pretends to find a way to dissolve human conflicts. But such conflicts today are those which arise from the working of the capitalist system; and positivism finds a way only to obscure the grounds of conflict, to fog the issues, and to present the issues precisely and exclusively as they appear from the point of view of the capitalist class. This can dissolve no conflicts. All it can do is to aid the struggle of the forces of reaction against the forces of progress. And this it is, indeed, capable of doing effectively.

#### 4. CONCRETE THINKING

But when all this is said, a point still remains. Surely, it is argued, semantics has nevertheless its positive features, and these features are of genuine importance and value for contemporary philosophy. For surely it is right to "search for the referent," to beware of being led astray by abstract terms and phrases, and, as Chase says, to "look as it were over the edges" of our words and ask: "What is really happening out there? How do the facts hang together out there? What are people really doing out there?"

Yes, that is quite right. But the point is that this in itself is

no new discovery of positivism, for materialism knew all this long ago; and Marxist dialectical materialism, in particular, is distinguished for its consistent carrying out of such principles. "It was decided," wrote Engels, "relentlessly to sacrifice every idealist fancy which could not be brought into harmony with the facts conceived in their own and not in a fantastic connection. And materialism means nothing more than this."<sup>1</sup>

As for positivism, it professes to provide a method of criticism of idealist fantasies of all kinds by showing them up as "meaningless blabs." It professes to put us on the path of truly concrete thinking, in place of meaningless abstraction. It professes to teach us how to make everything we say refer to concrete facts, events and objects, instead of to "personified abstractions." But in contradiction to its profession, positivism actually cooks up a system of abstract terms and phrases of the most misleading kind, embodying an idealist theory about words and about the unknowability of the reality to which words refer.

The path of the criticism of idealist fantasies and of the study and understanding of things and processes as they exist in concrete reality is not by the recipes of positivist semantics but by the methods of dialectical materialism.

Lenin, for example, pointed out that the concrete approach to any problem must be guided by the demands of "dialectical logic"; and he formulated four such demands:

"In the first place, in order really to know an object we must embrace, study, all its sides, all connections and 'mediations.' We shall never achieve this completely, but the demand for all-sidedness is a safeguard against mistakes and rigidity.

"Secondly, dialectical logic demands that we take an object in its development, its 'self-movement,' in its changes. . . .

"Thirdly, the whole of human experience should enter the full 'definition' of an object as a criterion of the truth and as a practical index of the object's connection with what man requires.

"Fourthly, dialectical logic teaches that 'there is no abstract truth, truth is always concrete. . . .'"<sup>2</sup>

Thus Lenin pointed out that in formulating and using

<sup>1</sup> Engels: *Ludwig Feuerbach*, ch. 4.

<sup>2</sup> Lenin: *Once Again on the Trade Unions*.

the general, abstract concepts by means of which we seek to comprehend any subject matter we must take into account the different sides and aspects of that subject matter, its various connections; that we must consider it, not as something fixed and static, but as changing and developing, and the laws and tendencies of this change must be included in its concept; that the general conceptions which we employ must be defined and elaborated in a way that is based on our actual experience, connects up with our practical requirements and serves as a guide to practice; and that we must always proceed "by means of a thorough detailed analysis of a process in all its concreteness."<sup>1</sup> "The living soul of Marxism," Lenin wrote, is "the concrete analysis of concrete conditions."<sup>2</sup>

In this way, to think concretely is to think dialectically, and to think dialectically is to think concretely.

The method of materialist dialectics is opposed to idealist, abstract schemes, which are substituted for the examination and study of things as they are, in their actual movement and interconnections. It is equally opposed to the metaphysics of the "search for the referent," which proceeds to name some set of particular objects and their properties and relations as the "referents" or "designata" of every inquiry, and forbids the formulation of the general concepts in terms of which alone their movement and interconnections can be grasped.

This metaphysics imagines that by seeking to refer exclusively to the particular data of observation, to the features and external connections of things immediately evident to the senses, it is showing the way to knowledge of concrete facts and disabusing our minds of baseless abstractions. But the very opposite is true. There is no such thing as a particular object existing independently of the totality of its connections with other things; such "concrete" objects are themselves abstractions. And all the data of observation by the aid of which we become aware of the world outside us, are simply the first reflection in our consciousness of those particular features or aspects of objective reality by which we have been affected. To make our thought encompass reality in its concreteness, therefore,

<sup>1</sup> Lenin, *One Step Forwards, Two Steps Back*.

<sup>2</sup> Quoted by Mao in *On Contradiction*. See V. I. Lenin, *Collected Works*, Russian ed. Moscow 1950, Vol. 31, p. 143.

we must pass from particular things to the internal connections of things and the laws of their movement and change. Starting from the data of observation, we must go on to formulate general concepts—"high-order abstractions"—by means of which alone we can grasp more adequately, with greater comprehensiveness, the actual connections and movements in the objective world. We must pass from one stage of knowledge to another—from knowledge of particular facts and external connections to knowledge of processes in their concreteness with their internal connections, from perceptual to rational knowledge, from superficial to profound knowledge.

To refuse to pass from particular observations to general concepts, to limit thinking to the detailing of particular observed facts, is to refuse even to attempt to understand the processes of the real world, to renounce completely "the concrete analysis of concrete conditions." And the methods of thought which accompany such a standpoint are as much productive of abstract schemes as those of any other variety of idealism.

In contrast, it is the dialectical materialist method that is the method of thinking concretely. And the essence of the dialectical materialist method is that, in opposing all such abstract schemes, and substituting for them the study and generalisation of concrete reality, it is based on practice. We know things in their real movement and interconnection, not by formulating some conceptual scheme based on how the things have affected us—which is the essence of idealism and of fantasy—but by acting on things, changing them, and generalising this practical experience in concepts which sum up what we have learned of things, which point the way to learning more and doing more, and which are tested, amplified and developed in the course of practice.

To think concretely is to think about the problems which face us in actual practice, and to work out ideas which help us to formulate those problems and to solve them, and which are consequently tried and tested in that practical process. Our ideas and their expression become clear in proportion as we succeed in doing precisely this. We do need to think concretely and we do need clear ideas. That is what materialist dialectics teaches.

Positivism, on the other hand, pretending to teach this, turns from the consideration of things to the consideration of words; it produces a metaphysical scheme for saying empty nothings about a world which it teaches us to regard as unknowable and incomprehensible; and it ends by turning the edge of its criticism, not against the fantastic abstractions which it begins by condemning, but against the general ideas in terms of which alone it is possible to think out and solve the real problems and to advance human knowledge and human welfare.

The conclusion about the positivist misuse of semantics has been so admirably expressed in Barrows Dunham's chapter on the subject that I cannot end this discussion better than by quoting his final paragraphs:

"The real world sets us real problems, and . . . the real problems are susceptible of real solutions. We have to repair a ravaged world, to feed and clothe and house its people, to liberate the yet oppressed, to deal justly with millions who have never known the touch of honest hands. It is inconceivable that even the smallest of these mercies can be visited, if we permit ourselves to think that the words which express them are meaningless and vain. Nor shall we succeed by imagining the contrary folly, that problems can be solved by a simple adjustment of language.

"There is a problem of language, to be sure; but that is not our main concern. There is need for speech of clarity and precision, but neither is that our final goal. What we shall find is that our speech will grow clearer in proportion as we solve the objective non-verbal problems; and that, so far as we fail to solve them, our speech will remain halting and obscure. It is precisely for this reason that semanticists cannot make themselves intelligible; and the semantic philosophy, a tower of confusion, warns us for ever that men who forsake the care of humankind will lose all understanding from their hearts and all vision from their eyes."<sup>1</sup>

<sup>1</sup> Barrows Dunham: *Man against Myth*, p. 212.

## CHAPTER 17

### “UNIFIED SCIENCE”

#### 1. THE APPLICATION OF SEMANTICS IN THE ANALYSIS OF SCIENCE

I NOW return to the more austere exercises in semantics by Carnap and the members of the school of “logical empiricism,” who have applied semantics in the philosophical interpretation of the physical sciences.

In these philosophical speculations is continued the same “search for the referent” and the same criticism of abstractions which Stuart Chase and others applied in the sociological and political field. In this case the “referent” is found in the data of physical observations, or in the operations whereby those data are obtained; and the abstractions—the general concepts and general theories of the physical sciences—are not so much rejected out of hand as meaningless, as reinterpreted as rules and formulæ for predicting the occurrence of observational data, the observed results of physical operations.

Thus Carnap says that the reference of the concept of the electron, for example, is to the particular observations—pointer-readings and so on—obtained in the physical laboratory. To speak of electrons is to formulate rules about these observations. The physical operations and observations now take the place of the “Adams.”

It is clear, then, that this application of semantics to the physical sciences cannot produce anything strikingly new or original. It is simply a restatement of the time-honoured theory of positivistic idealism. I shall examine this restatement in some detail.

In *Formalisation of Logic* Carnap suggests that semantics has considerable philosophic “application,” and in the preface to *Introduction to Semantics* he ties up the whole question with the central philosophic aim of logical positivism, namely, the “analysis of science.”

For the analysis of science, he says, we need, besides a purely



formal analysis of language, i.e. syntax, also an analysis of the signifying function of language, i.e. semantics, "a theory of meaning and interpretation."

The application of semantics to the analysis of science means, then, that the logical positivists are no longer concerned merely with the "logical syntax" of the language of science but also, and primarily, with the question of the designations of the terms used in the sciences and with the mode of determining the truth or falsity of the statements of the sciences.

In this way a return is made to the kind of "analysis of science" which was practised by the earlier exponents of the so-called "logical-analytic" method—it is permitted to speak of the meaning of scientific statements and to try to clarify their meaning. But this clarification is now to be carried out by "semantical" methods.

The basic idea remains in force, that the philosophic analysis of science is analysis of the language of science. The subject-matter of philosophical discussion, for the logical positivists, is always language. Thus in *Foundations of the Theory of Signs*, for example, C. W. Morris roundly asserts that the study of science falls "entirely" under the study of the language of science, because the study of the language of science includes not only the formal structure of that language, but the relations of its signs to the objects signified and to the persons using the language.

The task of the semantical study of the language of science has been undertaken in a collective work published in the U.S.A., entitled *International Encyclopædia of Unified Science*. I shall examine some of the results of this analysis.

## 2. THE INTERPRETATION OF PHYSICS

In an article entitled *Foundations of Logic and Mathematics*, Carnap indicates the way in which semantical analysis applies to the science of physics.

Considering in the first place the terms employed in physical science, and their designation, he distinguishes what he calls the "elementary" from the "more abstract" terms employed. This distinction is fundamental in his "analysis."

The "elementary" terms are those which refer to what is directly observed—such as pointer-readings, flashes on screens,

lines on photographic plates, tracks in Wilson chambers, and so on. These terms are said to designate such observational data.

Carnap then points out that “singular sentences with elementary terms” can be “directly tested.”—For instance, such a singular sentence as “the pointer-reading is 5” can be directly tested by examining the pointer and seeing if it coincides with the mark “5” on the scale. In other words, the system of physical science includes readily formulable semantic rules for determining the “designation” of the elementary terms of science, and for determining the truth or falsity of singular sentences with elementary terms. According to the semantic definition of “truth,” the singular sentence: “The pointer-reading is 5,” for example, is true if and only if the pointer-reading is 5; and whether or not the pointer-reading is 5 can always be “directly tested” by looking at the pointer.

But on the other hand, the “theorems” of physics, expressed in the “more abstract” terms, such as theorems about electromagnetic waves, electrons, mesons and so on, can only be “indirectly tested.” Such indirect test consists in deriving from them singular sentences with elementary terms according to the syntactical rules of the science, and then utilising the procedure contained in the semantic rules to find out whether such singular sentences are in fact true.

For instance, a theorem about electrons is tested by observing tracks in Wilson chambers, a theorem about alpha-particles is tested by observing flashes on screens, and so on. From the theorem about electrons is derived, by a calculation employing exclusively syntactical rules, a singular statement about a track in a Wilson chamber, and the direct test of this singular statement is the indirect test of the general theorem about electrons.

From this Carnap concludes that in the science of physics we need give no “explicit interpretation” of any of the more abstract terms or theorems. We need assign no designation to such terms, i.e., we need not try to make out that there are such “entities” as electrons, electro-magnetic waves, and so on. It is enough that physics includes syntactical rules for connecting the more abstract theorems with singular elementary statements, and only the latter need be “interpreted.”

"Only singular sentences with elementary terms can be directly tested," says Carnap. "Therefore we need an explicit interpretation only for those sentences." We need not "understand" the abstract terms and theorems of physics, he continues. It is enough that physics contains a "calculus" whereby from those theorems can be derived singular sentences which can be interpreted and tested.<sup>1</sup>

Instead of saying, as the old style positivism said, that the meaning of scientific statements is to be made clear by interpreting them as being about sense-data, it is now said that they are not themselves to be "explicitly" interpreted at all. They are rather to be regarded as strings of signs whose function is that we can derive from them results which can be interpreted in observational terms.

This corresponds exactly to the opinions of a number of contemporary physicists concerning, for example, the wave functions and other mathematical formulæ used in quantum mechanics. They maintain that these formulæ have no physical meaning, in other words, they are not a mathematical means of describing any real physical processes. They are simply complex but efficient devices for predicting the results of observations.

In no sense does this depart from the two-centuries old subjective idealist tradition that the whole significance of science is to give rules for the prediction of observations. The application of semantics to the analysis of science in this case leads only to another way of presenting the old "analysis of science."

It is interesting to observe in this connection the twists which have been given to positivist theory over the years since Schlick first formulated the "principle of verification."

The first use of the principle of verification led to the purest subjectivism, i.e. to Wittgenstein's solipsism. The conceptions of logical syntax were introduced to afford a way out of this impasse. Instead of saying that the meaning of a scientific statement was to be elucidated in terms of expectations of experience, it was laid down that it was "metaphysical" to speak of meanings at all. Science was to be regarded as a system of statements based on protocol statements, governed by

<sup>1</sup> Carnap: *Foundations of Logic and Mathematics*, chs. 24, 25.

complicated syntactical rules connecting the general theorems with the basic protocol. But then it turned out that no account could be given of how the “basic protocol” was arrived at. Science had to be regarded simply as a “system of sentences,” and the “correctness” of any statement or theory was established simply and solely by whether it could be “brought into the system.”

Thus while the subjectivist analysis based on the first use of the principle of verification led to a severing of the connection between science and the objective world by making science deal purely with predictions of future sense-data, the new syntactical analysis only severed the connection even more completely by making science deal with nothing at all.

From this new impasse a way out has now been sought in terms of “semantics.” And with what result? Simply that the positivists are again “interpreting” science in the old way in terms of predictions of observations. They are once again saying that scientific theories are shorthand expressions for saying what we may expect to observe, or what sense-data we may expect to experience, under various specifiable conditions. Once more, therefore, the old type of subjectivism puts in its appearance.

Thus positivist philosophy continues to present nothing but a perpetual repetition of the same thing. As difficulty after difficulty is encountered in making traditional subjectivist ideas presentable, they are continually reformulated, covered up, disguised, by a more and more elaborate “logical” technique.

Amidst all the vicissitudes and twists and turns of logical analysis, the essence of the whole philosophy remains consistently the same. It is to confuse and deny the reference of scientific knowledge to the material world.

### 3. THE “BASIC PROCEDURE” OF EMPIRICAL SCIENCE

In a contribution to the *International Encyclopædia on Procedures of Empirical Science*, Victor F. Lenzen writes: “The basic procedure of empirical science is observation.”

This statement appears to be taken as self-evident, and it is this conception of “basic procedure” which determines

the whole account of the meaning of science in the *International Encyclopædia*.

Thus we are told that the statements and theories of the empirical sciences are based on observations and are tested in further observations, and that all the designations of the terms employed by the sciences are assigned by reference to observations.—Such is the simple account which is presented of the sciences.

More explicitly, Leonard Bloomfield, writing on *Linguistic Aspects of Science*, details various “steps” involved in what he calls a “typical act of science.” The steps are as follows: Observation; Report on Observations; Statement of Hypotheses; Calculation; Prediction; Testing by further observations.

This account of the “steps” involved in an “act of science” shows clearly enough in what way observation is conceived to be the “basic procedure.” L. Bloomfield points out that all but the first and last steps are “acts of speech.” These scientific “acts of speech,” then, are governed throughout by the basic procedure of observation: scientific theories are on the one hand based on a selection of observations, on the other hand they enable calculations to be made issuing in predictions which can be tested by comparison with further observations.

From this it follows that the analysis of the language of science, in so far as it takes into account the meaning, or semantical aspect, of the language of science, consists in showing how scientific statements are based on observations and issue in predictions of further observations. What scientific statements mean, what they refer to, is to be explained in terms of the observations on which they are based and which they can be used to predict.

Thus in science we have: (1) a basic procedure of observation, and (2) the construction of a scientific language whose statements are to be interpreted, given a meaning, as referring to observations and predicting observations.

Attention is entirely focused on the intricacies of the “rules”—syntactical and semantic—of the “scientific language.” As for the “observations,” they seem to be regarded as a simple matter—something just turns up and we “report” it.

The whole inadequacy of this kind of “ analysis ” is contained in the lack of analysis of what is involved in “ observation.”

If we consider, for example, what is involved in the observation of a pointer-reading, then it surely becomes very clear that the “ act of science ” is far from beginning with “ observation.” For in order to get a pointer-reading (or a flash on a screen, a black line on a photographic plate, a track in a Wilson chamber, or any other of the stock “ observations ” usually mentioned in logical analysis) there is first necessary the technical process of devising and constructing scientific apparatus. This is an “ act ” of social technique, which consists in the production of a physical system whereby the scientist-technician will be able to control the occurrence of certain processes and record or measure them.

The point is that the basic observational data for scientific theory are not “ given,” but *produced*.

The “ observations ” and the “ records ” of observations, which serve as starting point for a further development of scientific theory, are themselves produced by the application of a technique; and this technique has its foundations in already established theoretical knowledge, in the light of which it seeks to win further knowledge and control over physical processes.

The real “ act of science,” then, has its basis, not in a mere “ observation,” but in an activity of social technique. The subject matter of scientific theory, that to which the theory refers—its “ designation,” if we are to use such a term—is by no means the observations, but the objective material processes to which the technique relates and which are registered, recorded, measured by means of the observations obtained by the use of the technique.

The theories of science are tested in the further application of technique, and in the success or otherwise of new techniques invented in the light of the theories. Once again, to say merely that they are “ tested by further observations ” is to conceal the real character of the test.

And it must be added that, just as the observations of science are obtained in such a way that they throw light on the actual constitution and laws of physical systems, so scientific theories serve the ends—or rather can, if properly devised and understood and made use of, serve the ends—of increasing our

all-round understanding of ourselves and the universe, and of increasing thereby our dominion over nature and our ability to organise our own social affairs successfully. In this way, the "test" of scientific theory is by no means confined to a laboratory test, but is effected in the whole application of science in social life.

All this is conveniently covered up by the formula of the *International Encyclopædia* about "basic procedure of observation."

### *Experiment, Apparatus and Instruments*

When science is "analysed" in terms of the formulation of rules based on given data, the data usually turn out to be recordings from instruments—pointer-readings, flashes on screens, etc. This at all events is the case with modern physics, which usually receives the main, or even the exclusive, attention of those engaged in "logical analysis."

And thus we find the most extraordinary and confusing conclusions presented, to the effect that scientific theory consists in the main in the formulation of rules about pointer-readings and flashes on screens. For example, the science of physics—what is it all about? It is not about the constitution of the physical world, but it consists of statements about pointer-readings and flashes on screens.

It is well known that A. S. Eddington, in his philosophical book on *The Nature of the Physical World*, produced a complete mystification of physics along these lines. And to all intents and purposes exactly the same sort of mystification is produced by the logical positivists.

What is the answer to this mystification? The answer is to understand that such data as pointer readings and flashes on screens are not things which just happen in the experience of physicists, presenting them with the task of formulating rules governing the order of such strange events, but that these types of events are produced by the scientists themselves, and produced with a definite purpose.

It is true that from the point of view of a "pure" mathematical physicist, the data may be regarded as just "given." For there is often a division of labour, where the experimenter produces the data and the mathematician interprets them.

But yet he cannot interpret them rightly if he just accepts them as given—for the point is, they were produced, and he needs to know how they were produced. The “ data ” of science are produced, by scientific technique and experiment, with the end in view of extending knowledge of the world.

For instance, there are various different sorts of pointer-readings—those taken, for example, off scales, clocks, galvanometers, etc. The pointer is, of course, a part of a physical object, namely, a scientific instrument, which was very carefully constructed and tested according to certain established principles in order to register certain changes by measurement on a scale.

Eddington said: “ The whole subject matter of exact science consists of pointer-readings and similar indications.”<sup>1</sup> From this he concluded that what the pointer signified was “ inscrutable,” “ something we know not what.”

But yet, if we consider how the pointer is constructed; and regard the reading, not as an ultimate given datum, but as something obtained by definite means for a definite purpose; then there is no puzzle. The subject matter is seen to be, not pointer-readings in themselves at all, but various aspects of the world, which we record by the pointer-readings.

In general, science is not founded on the given—given protocols, given experiences, given readings, etc. Science is not merely empirical, but experimental.

For example. Galileo wanted to obtain laws of acceleration of falling bodies. So he devised experiments. These consisted in rolling a polished ball down a smooth inclined plane; he laid a scale against the plane, so that he could mark off the distances travelled by the ball on different occasions; and he constructed a clock to tell how long the ball took to travel the distance on each occasion. (It was a very crude clock in this case, as our present more accurate clocks were only invented as a result of the work of Galileo.) From the results of these experiments he was able to formulate the law that the distance covered by a falling body, starting from rest, varies with the square of the time of the fall.

This law, as is clear from the experiments from which it was derived, does not have the pointer-readings (on the scale

<sup>1</sup> Eddington: *Nature of the Physical World*, p. 252.



and the clock) as its "whole subject matter," but it relates to the motions of falling bodies.

To generalise further. An experiment takes place when a scientist or scientists bring about certain changes under pre-arranged conditions, to observe the results. An experiment is an activity, a real material event, in which people (the experimenters) consciously and with purpose handle and alter the objects around them.

Thus, in so far as science is based upon experiments, scientific knowledge is not obtained merely by recording the given—pointer-readings, etc., as in Galileo's case—and working out rules based on the given readings; but it is obtained on the basis of the activity of changing the world.

We interrogate nature. We interrogate nature by interfering with it, changing it.

So scientific knowledge is founded on the activity of changing the world. We ask a question about certain things—what is their composition, what are their laws of motion, etc.? And we find the answer by changing those things and noting the results of the changes.

For instance, physicists have now won considerable knowledge about atomic structures. This knowledge was obtained—not just by looking at flashes and pointer-readings and formulating rules about them—but by causing atomic changes, bringing atoms under conditions in which they got knocked about. They found something out about what was inside the atom by knocking bits out of it, and examining what happened when those bits were knocked out.

Now it is obvious that to find out what is happening under given conditions, and to observe it more accurately, instruments must be devised. And the technical development of scientific instruments forms a very important part of the history of science, for without these instruments scientific knowledge could not advance. There is, as was pointed out in an earlier chapter, a mutual relationship between theory and technology. The more we know about the constitution and laws of motion of material systems, the better the instruments we can devise. The better the instruments we can devise, the more we can advance scientific theory. Advance in theory leads to advance in technology, advance in technology leads

to advance in theory, and neither can advance without the other.

In general, then, we find out about the constitution and laws of motion of material processes by bringing about changes in the world. We construct apparatus and instruments such that the character and effects of those changes can be readily perceived and measured by means of the instruments. What scientific theory deals with is then not just the recordings on the instruments, but the changes which are recorded.

For example. We make use of a barometer and thermometer to register changes in pressure and temperature, making use of our knowledge that an increase in the downward thrust of the particles in the atmosphere results in a rise of the mercury column of the barometer (because the instrument is constructed with precisely that end in view), and that an increase in the temperature of the surrounding bodies results in a rise of the mercury column of the thermometer. Thus we can establish that the boiling point of water varies with variations in the atmospheric pressure, and how it varies—a quantitative law. But that law is not just a rule for correlating readings on two scales, but it is a law about the behaviour of water.

A second example. We inject a disease into a guinea pig, and then make use of a microscope in order to see what effect this disease has upon the tissues of the subject. The microscope is constructed according to the laws of the refraction of light in order to produce an image of objects which are not visible to the naked eye. The experiment, however, does not just tell us what happens when we look through a microscope, but it tells us what happens to diseased tissues.

A third example. Rutherford investigated atomic structure as follows. He placed a radio-active substance in front of a very thin piece of metal foil, and behind the foil placed a zinc sulphide screen, with a microscope directed on to the screen. A number of green flashes were observed on the screen (since every time an  $\alpha$ -particle emitted by a radio-active substance hits a zinc sulphide screen, it causes a green flash). And from the distribution of the flashes on the screen, Rutherford calculated both the approximate size and the charge of the atomic nucleus of the atoms composing the metal foil.

These green flashes were in fact the data from which Rutherford derived his atomic theory.

Was, then, Rutherford's theory about the size and charge of the atomic nucleus really only a rule about the distribution of flashes on a screen?

No. Because he had devised this apparatus and experiment in such a way that the distribution of the flashes on the screen would record something quite different, namely, something about the properties of the atomic nuclei inside the metal foil. The apparatus was delicately devised in such a way that the effect upon the particles emitted by the radium of their passing through the metal foil would be measured by the distribution of the flashes caused when they hit the screen. Whenever a particle hit an atomic nucleus as it passed through the foil it would be deflected, whereas other particles would go straight through without hitting anything. Thus the number and extent of the deflections suffered by particles registered upon the screen would be an index of the size of the atomic nucleus and its charge. (Clearly the greater the size and charge of the nucleus might be, the more particles would be deflected, and the greater would be their deflection.)

These examples show how an apparatus and instruments are constructed, designed to register the results of changes deliberately produced by experiment. Scientific theory is founded, not just on given recorded data, but on the whole activity of producing changes in the world, together with the construction of means to register and record those changes. And the subject matter of scientific theory is not just the recordings, the end-record, but the constitution, properties and laws of the types of objects which are the subject of the experiment.

To understand the significance and the subject matter of science, therefore, it is necessary to premise:

Firstly. That the problems of science have their basis in the problems of social production, of extending our power and control over nature and natural forces.

Secondly. That scientific theory, arising from the need to solve problems of social production, is based, not upon mere observation and recording of experiences or facts, but upon the activity of changing the world.

Thirdly. That in changing things, with the object of gaining knowledge of their properties, constitution and laws, science makes use of an experimental technique—the construction of apparatus and instruments designed to register, record and measure the changes that take place.

Fourthly. That the records thus obtained provide data for the framing and building up of theories, hypotheses and laws—which relate, however, not to the mere readings and other records themselves, but to the objective material things and processes which are being investigated.

#### 4. THE “ OPERATIONAL MEANING ” OF “ PHYSICAL REALITY ”

When the question is raised of the existence of the material world and the objective reference of scientific theory, Carnap long ago thought he had settled and dismissed this question when he wrote, in *Philosophy and Logical Syntax*: “ We reject the thesis of the reality of the physical world: but we do not reject it as false, but as having no sense, and its idealistic antithesis is subject to exactly the same rejection. We neither assert nor deny these theses; we reject the whole question.”<sup>1</sup>

This passage expresses the entire standpoint of the “ logical ” positivists. They will not allow that the physical world is real—but they do not want to be driven into denying its reality. Therefore they “ reject the whole question.” As for science, it consists of statements that are based on observations and issue in predictions of observations—and beyond that there is nothing to be said.

This standpoint is in no way changed by the advent of the “ semantical ” method in analysis. It is stoutly maintained in the *International Encyclopædia*. But a few more obscurities are woven into it, which I shall now proceed to examine.

In a contribution on *Foundations of Physics* (published in 1946, i.e., some years later than the analysis of physics by Carnap, which I have quoted) Philipp Frank introduces a conception called “ operational meaning.” In discussing the foundations of physics, he says, “ we must discuss the operational meaning of all symbols used and the kind of relations which exist between these symbols.”<sup>2</sup>

<sup>1</sup> Carnap: *Philosophy and Logical Syntax*, p. 20.

<sup>2</sup> P. Frank, *Foundations of Physics*, Introduction.

Proceeding to "the logical structure of physical theories," he says: "In every physical theory there are: (1) the equations of the theory, the 'calculus.' (2) The laws of transformation of the calculus (i.e., the 'syntactical rules' of the physical calculus, M.C.). And (3) the statements defining the physical meaning of terms, the 'semantical rules.'"<sup>1</sup> In physics, he continues, the semantical rules "consist in the description of physical operations." They give "operational definitions" of terms, of immense complexity if worked out in detail.<sup>2</sup>

He launches into a long discussion of the conceptions employed in relativity theory and in quantum mechanics. Towards the end of this discussion he remarks: "The new mechanics, we are often told, does not describe physical reality at all." But he is unwilling to accept this point of view; on the contrary he is willing to allow a sense in which physical theorems do "describe physical reality."

In this respect, it appears that he is revising Carnap's view about physical theorems, expressed in an earlier number of the *Encyclopædia*. Carnap maintained that "no explicit interpretation need be given" of theorems about electrons, for example. But Frank is ready to allow an "operational definition" of the terms of such theorems, and an "operational meaning" of the theorems themselves. Thus he states: "we can ascribe 'physical reality' to the objects of our new mechanics, provided we mean 'reality' in the operational and not the metaphysical sense."<sup>3</sup>

What is this "operational sense" of "reality" in which the physical world is now allowed to be "real"?

I have carefully read Philipp Frank's contribution several times, but do not find that he is willing to commit himself to any more definite statement. But it is possible to turn for enlightenment to the clearer statements of the spiritual father of all positivist empiricists, Bishop Berkeley, who long ago declared: "The table I write on I say exists; that is, I see it and feel it; and if I were out of my study I should say it existed, meaning thereby that if I was in my study I might perceive it. . . ." Berkeley is here explaining, to use the lingo of the

<sup>1</sup> P. Frank: *Foundations of Physics*, 1.

<sup>2</sup> *Ibid.*, 2.

<sup>3</sup> *Ibid.*, 47.

20th-century “ encyclopædists,” the “ operational sense ” in which a table exists.

Subjective idealism always insisted that physical objects, whether tables or electrons, exist in just this “ operational ” sense, and in no other “ metaphysical ” sense. Philipp Frank is saying nothing new. He is not substantially revising the formulation of Carnap, any more than Carnap was substantially revising the formulations of Berkeley or Hume or Mach.

If Philipp Frank or any other logical positivist means anything else, they have ample opportunity of explaining what else they do mean. They have never yet availed themselves of that opportunity. They prefer their meaning to remain veiled in decent semantical obscurity.

The “ operational sense ” of physical reality, and the “ operational definition ” of physical concepts, found its way into the *International Encyclopædia of Unified Science* from P. W. Bridgman’s *The Logic of Modern Physics*, in which this particular terminology was extensively employed.

According to Bridgman, “ we mean by any concept nothing more than a set of operations,” and “ the proper definition of a concept is not in terms of its properties, but in terms of actual operations.”<sup>1</sup>

Thus spatial concepts, for example, such as length, refer to certain definite operations, such as measurement with a foot rule, and not to properties and relations of physical objects which exist independent of those operations. And physical concepts, such as the electron, again refer to certain definite sets of operations, and not to physical processes which exist independent of operations. In general, physics is about the operations of physicists and the observations—pointer-readings and so on—which result from such operations.

“ It is possible to analyse nature into correlations,” says Bridgman. “ . . . Such a thesis is the most general that can be made if nature is to be intelligible at all.”<sup>2</sup> That is to say, it is possible to correlate the observed results of operations, and this represents the entire content of physical theory.

From this Bridgman concludes: “ All our knowledge is relative,” that is to say, “ relative to the operations selected.”<sup>3</sup>

<sup>1</sup> P. W. Bridgman: *The Logic of Modern Physics*, pp. 5, 6.

<sup>2</sup> *Ibid.*, p. 37.

<sup>3</sup> *Ibid.*, p. 25.

Thus our physical knowledge relates to the operations of physicists, not to the objective physical reality on which and with which they operate.

He sees the advantage of this philosophy of physics in that it stops us from asking "meaningless questions," that is, questions such that there is no operation to answer them. He does not see that it stops us from understanding the meaning of our operations. He does not see that by means of our operations we are probing physical reality and discovering its objective properties; that by means of developing physical technique we are increasing our knowledge of the properties of matter, and not simply finding more observational data to correlate; and that, moreover, questions which existing technique affords no operations for answering may not necessarily be meaningless, but may, on the contrary, be charged with meaning, because they stimulate the production of new refinements in technique which make it possible to answer them and to establish new and more profound physical discoveries.

The "operational meaning" of physical reality is, then, in truth nothing but a new formula of relativistic idealism, applied in the interpretation, or rather misinterpretation, of physics.

### *Ban on "Matter"*

Having said that "physical reality is 'operational,'" Frank has something to add about "matter."

"In order to avoid ambiguity and to keep strictly to the operational meaning," he declares, we must "ban" words like "matter" from physical science. Thus we may say that the world is "real in an operational sense," but on no account may we say that it is material.<sup>1</sup>

Here the *International Encyclopedia* adds its authority to the chorus of those who have been telling us for the past half-century that, for physical science, "matter has disappeared."

Meanwhile physical science remains unrepentant in its investigation of the structure and laws of material systems. In the 2nd (revised) edition of his standard textbook on *Quantum Mechanics*, for example, Dirac lays it down that quantum mechanics studies "the structure of matter."<sup>2</sup> In

<sup>1</sup> P. Frank: *Foundations of Physics*, 51.

<sup>2</sup> P. A. M. Dirac: *Quantum Mechanics*, p. 3.

the philosophical introduction to this book he falls almost immediately into considerable “ ambiguity ” in seeking to expound, in an idealistic way, the fundamental concepts of quantum mechanics in terms of physical operations. Nevertheless, he falls into no ambiguity in speaking of “ the structure of matter,” because this term bears the precise, scientific sense which was defined by Lenin—“ Matter is the objective reality which is given to man by his sensations, and which is reflected in our sensations while existing independently of them.”<sup>1</sup> But for Philipp Frank and the other contributors to the *International Encyclopædia*, this is a “ metaphysical sense.”

The utter confusion of Philipp Frank is shown when he says: “ Words like ‘ matter ’ . . . are left to the language of everyday life, where they have their legitimate place and are understood by the famous ‘ man in the street ’ unambiguously.” Thus he explains that, in an “ everyday sense,” we may call a table or a brain “ a piece of matter,” but on no account may we refer to electrons or photons as “ matter.”

It is quite true that if we think of an electron as “ a piece of matter,” like a little billiard ball, we will be unable “ to avoid ambiguity.” But this only shows that “ the famous man in the street ” has not, after all, a completely “ unambiguous ” conception of what he means by “ matter.”

This unambiguous conception was expressed philosophically by Lenin when, in answering the confusions of the empiricists, he wrote: “ The sole property of matter with whose recognition philosophical materialism is bound up is the property of *being an objective reality*, of existing outside our mind.”<sup>2</sup> It is further amplified by Engels when he writes, for instance, that the material world is not a complex of things but “ a complex of processes,” that “ motion is the mode of existence of matter,” and that space and time are the forms of matter, “ the basic forms of all being.”<sup>3</sup>

The question which Philipp Frank refuses to face, and which, like every contributor to the *Encyclopædia*, he covers up and “ rejects,” is the question of whether science is knowledge of

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 2, section 4.

<sup>2</sup> *Ibid.*, p. 317.

<sup>3</sup> Engels: *Ludwig Feuerbach*, ch. 4; *Anti-Duhring*, chs. 5 and 6.



objective reality, and whether physical science in particular describes objective physical processes.

An electron has "physical reality" according to Philipp Frank—but only "in an operational sense." That is to say, we may speak of the "physical reality" of electrons provided we only mean that when we conduct certain "physical operations" with a Wilson chamber, for example, then we shall afterwards observe a certain pattern of streaks on a photographic plate—just as Berkeley spoke of the existence of the table in his study, "meaning thereby that if I was in my study I might perceive it."

### *Scientific Explanation*

While the positivists seek to present science as a method for correlating the results of observations and operations, they entirely overlook and in effect deny the fact that the problems of science arise from social practice and are problems of determining the constitution and laws of motion of objective things and processes in order to be able to understand, control and use those things and processes; and that therefore the main *theoretical* outcome of science is to *explain* the world in which we live.

A given subject matter may be said to be explained by a theory which states what are the different factors which produce and compose it, and what are their relations and laws of motion.

No explanation is ever complete. But people have always sought for explanatory theories, because we need such theories in our daily lives and for purposes of social production. In so far as things are explained, we know how to act in relation to them, and we know how far we can influence, control or produce them; whereas we are helpless in relation to that which we cannot explain. And the best test of the correctness of a mode of explanation, of whether it is on the right lines or not, is the extent to which it leads to practical power and control.

Even primitive peoples had explanatory theories. For instance, in relation to the question of rain, they would explain this as being due to the action of the Rain God; and so, when they needed rain, they would perform that course of action which, according to their theory, would be most likely to

induce the Rain God to send it. Their explanation, however, both in theory and in practice was very unsatisfactory, and quite certainly untrue. But we, by means of scientific methods, are still trying to explain things. Science is a method for arriving at more complete and approximately true explanations, which are not mere guesswork or founded on accepted traditions, but are scientifically founded, tested and verified. The scientific explanation of things gives us tremendous power of social production, of handling and altering things in accordance with our particular interests, and of planning our lives.

It is possible to cite very many examples illustrating the meaning of scientific explanation. For instance, medical science is trying at the present day, amongst other things, to explain the nature of cancer. It has succeeded to some extent. It is known that cancers consist in a group of cells that have started to grow independently and out of relation to the rest of the body; and this knowledge enables cancers to be treated, and sometimes cured. But it is not known why cells should begin to behave like this; and thus the explanation is very far from complete, and we do not know how to prevent cancers. When medical science finds an explanation which will make it possible to control and prevent cancers, then it will have arrived at a more complete explanation of cancer. For such an explanation will not only explain what cancer is, but how it arises.

Again, modern atomic theory is a theory of extraordinary explanatory power in relation to many phenomena, which enables us to produce things and change things in a way that was not possible without the knowledge provided by this theory. It explains, for instance, the series of elements, and accounts for their atomic weights. It explains the different states of matter—solids, liquids and gases. It has the most important applications in the electrical and metallurgical industries, and in all techniques where we are concerned with transforming matter from one state into another.

It must not be concluded from this, however, that the desire for a direct practical application provides the immediate motive for all explanatory theories.

Indeed, many explanatory theories appear to have no

direct practical application at all. For instance, we would like to explain the origin of the solar system, and various theories about it exist. But it does not seem likely that any explanation of the solar system, however perfect, would enable us to control the motions of the sun and planets, or to make another such system for ourselves better than the present one.

The need for such explanations arises not merely from direct practical needs but from the general desirability of extending scientific understanding and getting rid of the unknown and inexplicable.

For instance, when physical philosophers in ancient Greece began to work out physical explanations of thunderstorms, although their explanations were faulty and did not enable them to protect themselves against thunder and lightning, they marked a tremendous advance for human thought. For they began to get rid of superstition and fear of the supernatural, by showing that the thunder was not due to the wrath of Zeus but had a natural origin.

In the same way we still need to explain the origin of the solar system, of the earth, the stars, etc., not because this will have any direct practical application, but because it will banish superstition and advance natural knowledge.

At the same time, it may often turn out that explanations which appear to have no practical application at the time they are first put forward, may turn out later to be of great practical importance. For instance, knowledge of the composition and laws of development of the heavenly bodies, which appears to be knowledge for its own sake, may contribute to knowledge of the sub-atomic properties of matter, whose practical application is very important and immediate indeed. And knowledge of the origin of the solar system and the earth would doubtless contribute much to the practice of living on the earth.

It should be further noted, incidentally, that many such explanations can never be directly verified, and their status must therefore remain a very provisional one, depending on their probability in relation to what we do know and have verified.

Thus Jeans' theory that the solar system originated by a star once coming rather close to the sun and pulling pieces out of the sun by gravitational attraction, is an improbable

explanation; because from what we know of the motions of stars it would be very improbable that such a collision should take place.

Science does not consist in the statement of empirical laws only, but in terms of those laws it consists in the statement of explanatory theories. An explanatory theory is not the same as an empirical law. An empirical law is a statement of the form: “ If . . . then . . . ” ; but an explanatory theory says: “ These *are* the factors which operate, and they operate like this: . . . ” Clearly the explanatory theory includes the law, but is not the same as a law. And in terms of the explanatory theory we can recognise and understand the forces operating in the world, and, under certain conditions, change them, control them, and use them for our own purposes.

Failure to grasp that science explains, leads to some queer and puzzling results.

For example, many writers who philosophise about science, in particular about physical science, seem quite unable to relate the theories of science to the facts of common knowledge. They duplicate the world, and write as though there were two worlds—the world of common experience, of the things and processes which we perceive and encounter in our ordinary lives, on the one hand, and the world of physics on the other hand. Thus in his *Nature of the Physical World*, Eddington had something to say about tables, and made out that there are always two tables: the ordinary table, which we see and touch and have our tea on; and the scientific table, which is studied by physics. The two tables are quite different, for the ordinary one is solid, whereas the scientific table is nearly all empty space. He cannot relate the table as described by physics to the table encountered in ordinary life.<sup>1</sup>

An exactly similar duplication is made by such philosophers as Carnap or Wittgenstein, though they consider themselves and are generally considered as far superior to Eddington in philosophical ability and logical acumen. For them, too, a scientific statement about a table does not relate to the same objects as an ordinary statement about a table. The ordinary statement relates to our ordinary perceptions; the scientific statement relates to the pointer-readings, flashes on screens,

<sup>1</sup> Cf. L. S. Stebbing, *Philosophy and the Physicists*, ch. 3.

etc., etc., which turn up under the specialised conditions of a physical laboratory.

But the truth is, that the scientific theory of the table explains the characteristics and properties of the ordinary table. There is only one world, one table. Scientific theory relates to exactly the same material world, and to the same table, as is perceived and encountered in ordinary life. For example, the scientific theory which presents the table as nearly all empty space, explains how and why the table is solid. Thus the table is solid, that is to say, it resists pressure; when I put the teapot on the table it stands there, and does not fall through. Why? Because when the teapot is put on the table the small objects of which the table is composed keep hitting against those which compose the teapot, and thus cause the teapot to stand on the table and not to fall through. Hence it is explained why the table is solid in relation to such things as teapots—whereas, on the other hand, other things will go right through it; for example, cosmic rays will go right through the table, because there is nothing to stop them.

This explanation, incidentally, of why bodies, such as tables, are solid, and of what constitutes their solidity, is of very great practical importance. We can, for example, make use of this knowledge if, instead of cutting wood for tables, we set out to make plastic tables out of plastic materials. In that case it is very important to know what conditions bring about solidity, and this scientific knowledge can lead to the construction of tables far more serviceable and far easier to make than the traditional wooden tables.

Thus scientific theory explains the properties of the familiar material world. It does not invent or discover another duplicate world of science.

It can be seen, too, that the denial that scientific theory explains the world is in its tendency entirely reactionary and obscurantist. If the explanatory aim of science is understood, then it can be seen how the advance of scientific explanation advances our power of controlling nature and of organising production for the common welfare of mankind. On the other hand, the denial of the explanatory power of science covers up the potentiality of the use of science for improving human life. If scientific theory is not related to the real

material world, but is concerned with a duplicate “world of science,” then the world we live in and our life in it is presented as something strange and inexplicable.

Lastly, it is worth noting briefly, that logicians and philosophers, in writing about science, often seem to confine their “analysis” to the “exact” sciences, such as physics, chemistry, bio-chemistry, etc., and sometimes even to physics only. But there are other sciences, the historical and social sciences, whose methods are in many respects different, because of the different nature of their subject matter, but which none the less produce scientific explanatory theories.

For instance, the science of history is a science, which can explain the movement of history. But its methods are very different indeed from those of physics. Thus, for instance, the historian can perform no experiments, and the data on which he bases his theories are not the records of experiments, but are the records of the various historical events. But the science of history does explain history. It shows the factors at work. Thus it shows how the chief governing factor is the mode of production; how on this basis classes arise; how the development of the relations of production and the consequent struggle of classes conditions the course of events. In this way it can give a more and more complete explanation, which also enables us in practice to recognise the historical factors at work now, how they operate, and therefore to be able, if we wish, to map out the course of action which is most likely to advance the interests and well-being of the people.

If, then, it is recognised that the aim of science is to formulate explanatory theories, which will give a picture of the different real forces at work in the objective world, and how they operate, so that we can in terms of such theories better control objective forces for our own purposes—then it can be recognised how greatly Carnap’s “logic of science,” and similar “logical” and “scientific” theories, have misrepresented the character and aim of science.

### *Scientific Objects*

Science, then, deals with the objective world outside us. It deals with the properties and laws of objective things. But nevertheless many doubts are raised as to whether the

objects which science studies do really exist. I want in this section to deal with what may be called the status of scientific objects.

Certain types of objects are familiar to us in everyday life—namely, those whose size, constitution and relationship to our senses make it possible for us to handle and to perceive many of their properties without the use of any special technique.

But such things as the stars, for example, which are very big in relation to our own size, and are a long way away, are shown by science to be very different from what they seem. We perceive them as little points of light, but investigation assures us that they are in reality bodies of enormous size. And again, other objects are revealed on a smaller scale, whose very existence was never thought of prior to scientific investigation.

In general, things of the same order of size as ourselves are familiar. But science introduces other objects, on the one hand very big ones, on the other hand very small ones. By so doing science explains the properties and behaviour of familiar objects, and helps us to transform and to use them. Such explanation involves, on the one hand, the exploration of the outer environment of the universe within which our life on the earth's surface takes place; on the other hand, the exploration of the inner "microscopic" make-up of material things.

According to the modern "logic of science," such scientific objects are fictions, and nothing corresponding to the scientific description of them exists. To speak of such objects is only a way of speaking of something else—the order of our experiences, or the data presented in the basic protocols, etc. But yet, if science represents knowledge and explanation of the objective material world, then evidently such scientific objects must be held to exist just as surely and objectively as more familiar objects exist.

For example. We know that the earth is a large spherical body, but rather flattened at the poles, with a circumference of 25,000 miles at the equator. The earth and the other planets all rotate on their axes, and travel in elliptical orbits round the sun, which is very big as well as very hot. The Greek scientist Anaxagoras caused a sensation in the age of Pericles

by teaching that the sun was in fact bigger than the whole of Greece: that was only his guess, and recent research has proved that it is enormously bigger than the earth.

These statements are not mere rules for predicting experiences, nor generalisations from certain protocols, but are well-established statements descriptive of the objective world in which we live. They are clear, unambiguous and well-verified statements about the sizes, shapes, and relative motions and distances of the bodies composing the solar system, on the surface of one of which we live our lives.

Moreover, by means of improved astronomical methods, we possess not only considerable knowledge of the solar system, but of the lay-out of the stellar universe of which the solar system itself is a part. Thousands of stars have been charted, not visible to the naked eye, and a considerable body of knowledge established about the relative sizes and distances of the stars, as well as about their general character and composition. It is established that our solar system is a part of one island universe—the system of stars composing the Milky Way; and that there are many other island universes, appearing to us in the form of spiral nebulae.

All this gives a picture—fairly reliable, though obviously very abstract and incomplete—of our environment in space. It represents a description of the objective material universe in its spatial extension; not a mere summary of what we may expect to see if we look through telescopes. Our idea of the past history of the universe in time, on the other hand, and of its probable future, is far more incomplete and uncertain; though a good deal of reliable knowledge has been accumulated as regards the past history of the earth.

Now in passing, it is perhaps interesting to note that when Copernicus, just over four hundred years ago, first put forward his famous hypothesis about the solar system, on which our present astronomical knowledge is based, there was even then some misunderstanding about its significance, similar to the misunderstandings which are being propagated today. Copernicus' *De Revolutionibus* was published after its author's death, and a certain clergyman called Osiander undertook to write a preface. He was afraid that the theory would offend the Church, and therefore he explained in his preface that



Copernicus did not mean at all that the earth *really* moved round the sun; on the contrary, all Copernicus was doing was to invent a system of rules for predicting the apparent motions of the planets more accurately than was done by the previous planetary tables. Osiander anticipated the "logic" of Wittgenstein and Carnap by four hundred years. But in fact this was not what Copernicus was doing; for the Copernican theory was a theory which laid the foundations for an entirely new picture of the universe, which did come into violent conflict with the picture previously drawn up and accepted by the Church. Nor was the Church deceived; for the Pope later put Copernicus' book on the banned list. Later on, Galileo was threatened with torture for writing that the earth moved round the sun; but had Galileo only had time to study "logic," he might have kept himself out of trouble.

Besides gaining scientific knowledge of the universe around us, of the sort of bodies that it contains and of their mutual relations, we also gain scientific knowledge of the internal constitution and motions of things; and this is particularly important for explaining how things work, for controlling them, altering them, etc.

For example, we have gained considerable scientific knowledge of our own bodies, and how they work. Of fundamental importance was the discovery of the cell structure of organic substances, and of the laws of cellular growth through the division and multiplication of cells. Further investigation led to discoveries about the internal structure of cells themselves. Again, the discovery of nerve-cells (neurons), and the investigation of their structure and relationships, and of the way in which they transmit impulses, is of tremendous importance for the explanation of the behaviour of animals; especially of such animals as ourselves, with a highly developed and complicated central nervous system.

The cells of which the body is composed exist just as surely as the body does. Their existence is very well verified. We see them through microscopes, can observe and modify their growth, can influence their behaviour experimentally and observe the results, etc. Though like all scientific knowledge, this knowledge, too, remains extremely incomplete.

It was the development of chemistry which gave rise to the

distinction of chemical compounds and elements. On the basis of that distinction, quantitative research began on the ways in which elements combine together to form chemical compounds. It was established that that combination always takes place in fixed numerical ratios. Thus was engendered the atomic hypothesis, according to which all chemical substances consist of very small atoms, different sorts of atoms corresponding to the different elements, and the atoms combining together in definite ways to form chemical molecules.

This was to start with no more than a working hypothesis. (To the nature and significance of working hypotheses I shall briefly return later in this section.) Thus the question was agitated, did atoms really exist, or was their existence merely a convenient fiction or manner of speaking? The positivist philosopher and scientist Mach was extremely scornful of anyone who was so credulous as to think that the atoms really existed. He explained that to talk of atoms was merely a convenient way of formulating the quantitative rules of chemical combination. As for such things as atoms existing, that was ridiculous metaphysics, and could never be capable of verification.

Nevertheless, the atomic hypothesis, originally introduced as a result of chemical discoveries, developed great explanatory power. For instance, it was possible to explain the nature of heat, and to account in an exact manner for many unexplained phenomena of heat, on the hypothesis that heat consisted in the movement of the atoms and molecules of which matter was composed. This led further to the explanation of the solid, liquid and gaseous states of matter. In the solid state, the individual atoms lie very close together, and their movements are not sufficient to counteract the forces that hold them together. If the atomic movements increase, the atoms break away, and the substance enters first into a liquid state, and then becomes a gas. Moreover, further quantitative investigations made it possible to specify fairly exactly what the size and weight of atoms must be, and the number of atoms contained in a given quantity of any substance. (There are  $6 \cdot 10^{23}$  atoms in a gramme of hydrogen; the weight of each atom is  $1 \cdot 6 \times 10^{-24}$  grammes, and its diameter  $10^{-8}$  cm.)

If the results just mentioned were such as to create an increasing presumption that such things as atoms really existed, their existence has by now become definitely established as a result of the further development of atomic physics—verified experimentally and through the use of technique.

The first full verification of the atomic hypothesis came through the investigation of radio-active substances. This meant that instead of merely postulating the existence of atoms as an explanatory hypothesis—a hypothesis to which all the more weight could be attached because of the wide field of phenomena it was able to explain—it became possible to study individual atomic processes, and the transformation of atoms of one element into those of another. Moreover, the striking experimental confirmation of the existence of atoms revealed at the same time the divisibility of atoms, and that the atom was a structure composed of more elementary objects—the atomic nucleus and its accompanying electrons. It became possible to determine with great exactness the size and weight of atoms, to formulate the laws of atomic transformation, to indicate the atomic structure of the atoms of different elements, and to specify the size, charge and weight of atomic nuclei and of the electron. Moreover, all this confirmed the previous quantitative results secured by other methods previously on the basis of the atomic hypothesis.

More recently, the cloud-chamber technique invented by C. T. R. Wilson enables photographs to be taken of the paths traversed by individual atomic nuclei and by other components of atoms, set free by atomic transformations. This technique depends on making water vapour condense around the path of electrically charged particles inside the cloud-chamber; and a photographic apparatus then records on a photographic plate the streaks formed by the condensed water vapour. By means of cloud-chamber technique, not only were electrons and protons identified, but also other types of “elementary particles,” positrons and neutrons, whose existence had already been suggested as a hypothesis by certain theoretical developments of atomic physics. In this way the existence of atoms and their various sub-atomic components is established with fully as much certainty as the existence, for example, of distant stars; that is to say, by photographic records.

Moreover, the techniques being developed by physics enable us, not merely to observe and photograph these sorts of objects, but to produce them and influence their motions and effects. Hence their existence must be regarded as very substantially verified.

It was just after I had drafted the above lines, that the news was announced of the production of the atomic bomb; namely, that a technique had been invented for utilising the process of the nuclear fission of uranium for definite ends—in the first place, for blowing up cities. This brilliant technical development inevitably leads to other applications for the purposes of peace, and the peaceful, constructive use of atomic energy is already being realised in the socialist Soviet Union. Naturally, it confirms beyond doubt the existence of the sub-atomic objects and processes, which are no longer put forward as a hypothesis, but are produced and used; although very much still remains to be learned of their nature and laws. It has also brought forward in a startling and urgent way the philosophical truth, that science is knowledge of objective nature, which is equivalent to power over nature; and that it behoves us to understand this, and to organise the use of that power for the progress and well-being of mankind.

It must be remarked in these examples how the development of scientific theory proceeds from hypothesis to knowledge. When a subject is under investigation, the explanation of the facts observed is usually in the first place advanced in the form of a working hypothesis. Such a hypothesis suggests further lines of investigation—further results which will be forthcoming if the hypothesis corresponds with the reality. By pressing forward such investigations, the working hypothesis is either shown to be erroneous; in which case some alternative line of theoretical explanation has to be sought; or else it is confirmed, and in the process of confirmation the hypothesis becomes knowledge. In the process of confirmation or verification, moreover, the hypothesis itself is generally modified, developed and corrected. And it is also necessary to premise that when we can claim to have scientific knowledge, such knowledge itself cannot be absolute, but is incomplete and provisional.

A very clear example of the confirmation of a working

hypothesis is sometimes given from the study of the planets. New planets have been discovered as a result of the observation of unexplained irregularities in the motions of known planets. Thus a hundred years ago, irregularities were observed in the motion of Uranus; and to account for these it was suggested that there must be another planet whose orbit was outside that of Uranus. This was a working hypothesis. On the basis of this hypothesis telescopes were directed upon the position where such an unknown planet was expected to be found, and the result was the discovery of the planet Neptune. The observation of Neptune confirmed the working hypothesis. The existence of Neptune became a matter of knowledge, not of hypothesis. Later on, study of the movement of Neptune revealed more unexplained irregularities, and the hypothesis was advanced that there was yet another planet beyond Neptune. This again was observed in 1930, the new planet being named Pluto, its observed period, perihelion, etc., agreeing remarkably well with the predictions made by the working hypothesis.

In this example it seems to be abundantly clear that the working hypothesis is the hypothesis of the existence, objectively in external space, of an object having certain recognisable properties—namely, of a planet. The hypothesis is not just a system of scientific statements giving a rule for where points of light will be observed through telescopes; but it is a statement to the effect that something exists externally, namely, a planet. When the hypothesis is verified, then, instead of conjecturing the existence of such a planet, we can say that we know that it exists.

The development of scientific knowledge can be likened to the charting of an unexplored, or only partly explored, territory. The territory exists objectively; whether we have charted them or not, the various mountains and plains, rivers, bays, etc., exist. Suppose the explorers are charting a particular river. They have been up it for 100 miles, and so they can fill in the course of the river for 100 miles on their map. Past that point they are not yet sure; but they think the river may rise in some mountains another 100 miles in the interior. So on their map they mark the rest of the conjectured course of the river by a dotted line. These

explorers will have to be constantly altering their map. Parts of it will be full of dotted lines, other lines will be firmly drawn.

It of course frequently happens in the development of science that hypotheses are put forward which are not borne out. For instance, in the 17th and 18th centuries it was generally presumed that the movements of animals were governed by the motions of what were called “ the animal spirits.” The body was supposed to be full of little channels, along which flowed the animal spirits. This hypothesis was, for instance, taken as gospel by the late Mr. Tristram Shandy, when he wrote in the first chapter of his *Life and Opinions*: “ You have all, I dare say, heard of the animal spirits. . . . Well, you may take my word, that nine parts in ten of a man’s sense or his nonsense, his successes and miscarriages in this world, depend upon their motions and activity, and the different tracks and trains you put them into.” This hypothesis was given up with the development of the cell theory of organic substances, and with the discovery of the nature and functions of nerve cells and of the central nervous system. The hypothesis of the animal spirits was superseded by knowledge of the transmission of impulses through nerve cells. At the same time, it is clear, on the one hand, that the animal spirits hypothesis was not, as we should say, entirely wrong, but it did contain a partial correspondence to the truth; and on the other hand, that our present knowledge of the central nervous system is intermixed with what still remains a great deal of conjecture and hypothesis.

The principal mark of scientific genius is the ability to advance a bold and fruitful working hypothesis, combined with the technical ability to carry out the investigations and experiments indicated by that hypothesis. This ability was possessed, for example, in a most pre-eminent degree by Rutherford. It was Rutherford who advanced, as a working hypothesis to explain the phenomena of radio-activity, the theory that what was taking place in radio-activity was the transformation of elements, and that the atom was divisible. It was this hypothesis which determined the whole subsequent brilliant development of atomic physics; and Rutherford’s technical ability in devising delicate experiments played further a leading part in that development. In the course

of these experiments, as has already been indicated, the hypothesis was fully confirmed, and our knowledge of atomic and sub-atomic processes was enlarged and extended in many ways.

But in the sphere of atomic physics, it must once again be stressed that our knowledge is general, abstract, incomplete, and in many respects provisional. The detailed analysis of physics at any stage must distinguish those principles which are established from those which are hypothetical—and the distinction is not always a rigid one. For example, in the “Bohr model” of the atom, the electrons were represented as “particles” revolving round the atomic nucleus, on the model of the solar system. This was a working hypothesis which proved very useful, but which seems not to be turning out to be literally true. The further investigation of sub-atomic processes has shown that electrons exhibit wave-like as well as particle-like effects; and also suggestions are made about the possibilities of the creation and annihilation of such “elementary particles” as electrons. Clearly big and important modifications and developments of sub-atomic theory are taking place and are going to take place. But this does not affect the indubitable objective existence of sub-atomic processes; any more than the fact that there are many obscurities about the way in which our central nervous system works, contradicts the objective existence of the central nervous system and the fact that it does control our behaviour.

### *The Principle of Economy or “Occam’s Razor”*

In concluding this section, it is useful to add a note about the famous “Principle of Economy” or “Occam’s Razor,” which the positivists generally suppose to be a guiding principle for the formulation of scientific theories. This is the principle which states: “Entities are not to be multiplied beyond necessity.”

Those philosophers who teach that scientific theory does not describe and explain the nature of the objective material world, but consists in the formulation of rules of the order in which events turn up in experience, always attach great importance to the Principle of Economy. The principle that “entities are not to be multiplied beyond necessity” means

simply that we should formulate such rules in the simplest possible way. Thus Wittgenstein restated the principle in this form: “What is not necessary is meaningless.” In formulating scientific rules we should use as few entity-words as possible, and if we introduce additional entity-words which are not necessary for the formulation of the rule, then those additional words have in that context no meaning.

But the true significance of the Principle of Economy, which is indeed a useful guiding principle in formulating scientific theory, can be understood only if we correctly understand the development of scientific theory from working hypothesis to knowledge.

In attaining to scientific knowledge, theory posits just those entities, and so many entities, as are known to exist and whose existence is verified—no more and no less. For instance, at a certain stage of sub-atomic knowledge we posit electrons, protons, neutrons and positrons as the known “elementary particles”—not because four is an economical number, but because those are the ones which have actually been discovered. Up to recently, there were only two—electrons and protons. Neutrons and positrons were added because they or their effects were observed in a cloud-chamber photograph. If we did not posit any more, it was because no more had been discovered, and there was no evidence that any more existed.

But let us suppose that a working hypothesis is being thought out to explain some unexplained facts that have come to notice. In framing such a hypothesis it is clear that it must be such as to suggest lines of future research and verification; and it must suggest just so much as is necessary to explain the facts—any more would not be meaningless, but it would be irrelevant speculation.

For instance, take the example already given of the explanation of the unexplained irregularity of the movements of Uranus by the hypothesis of another planet, Neptune, outside the orbit of Uranus. If the astronomers who had advanced this hypothesis had advanced a more complicated theory, to the effect that there was not one but two planets outside Uranus, their hypothesis, far from being meaningless, would in fact have been true. But the irregularities of Uranus were explained by the influence of one planet, Neptune. Anyone



who at that time had said that Pluto also existed, would have been speculating; and the data given by the irregularities of Uranus could not have given any indication as to where to look for the second extra planet.

The correct significance of the Principle of Economy has been well expressed by Eddington—perhaps not very consistently with some other of his philosophical formulations. “I am not satisfied with the view so often expressed that the sole aim of scientific theory is ‘economy of thought.’ I cannot reject the hope that theory is by slow stages leading us nearer to the truth of things. But unless science is to degenerate into idle guessing, the test of value of any theory must be whether it expresses with as little redundancy as possible the facts which it is intended to cover. Accidental truth of a conclusion is no compensation for erroneous deduction.”<sup>1</sup>

Thus in advancing scientific knowledge of the various “entities” or objects which enter into the objective processes of nature, we advance from knowledge of those which are known to knowledge of others previously unknown, by the help of hypotheses which suggest just so much as is necessary for explaining observed facts, and which suggest methods of verification of the existence of the objects which enter into the hypothetical explanation. This is the significance of the Principle of Economy. Failure to conform with this principle would lead, as Eddington said, to idle guessing; even though in some cases such idle guesses might more fully conform to the truth than a verifiable hypothesis.

## 5. “UNITY OF SCIENCE”

In the hands of the logical positivists, “semantics,” just like the “logical analytic method” and “logical syntax,” plays the part of an instrument for covering up the objectivity of scientific knowledge and for continuing to assert the restriction of science to the formulation of rules for predicting observations.

This conclusion is further borne out by the account of the “unity of science” which is presented in terms of the concepts of semantics in the *International Encyclopædia*.

In an earlier work, *The Unity of Science*, written while he was

<sup>1</sup> Eddington : *Space, Time and Gravitation*, p. 29.

still engaged in “ syntactical investigations ” and had not yet realised the virtues of semantics, Carnap had already tried to show how science can be “ unified.” He had regarded the different sciences as each employing its own peculiar “ scientific language,” which raised in an acute form the question of how all these diverse “ languages ” were connected together.

This question he answered by asserting that a single universal language of science could be constructed, into which all the statements in all the different languages of the different sciences could be translated. In other words, the analysis of the language of science had made the edifice of science appear as a tower of Babel, in which the practitioners of each separate science spoke different languages; and Carnap proposed to “ unify ” science by establishing a single language into which each of their different languages could be translated.

This universal language of science, he asserted, was the language of physics. All science could be reduced to physics. And this theory he named “ physicalism.”

Thus what Carnap called “ the thesis of the unity of science ” asserted that there was a single language, the “ physical language,” into which all the statements of all the sciences could be translated.

“ It is convenient, of course, for each department of science to have a special terminology adapted to its distinct subject matter,” he wrote. “ All our thesis asserts is that immediately these terminologies are arranged in the form of a system of definitions, they must ultimately refer back to physical determinations. . . . If we have a single language for the whole of science, the cleavage between different departments disappears. Hence the thesis of physicalism leads to the thesis of the unity of science.”<sup>1</sup>

This “ thesis of physicalism ” seems to have been quietly dropped in the *International Encyclopædia*—no great loss, it is true—and a revised concept of the “ unity of science ” is expounded by Carnap in the very first number. But while “ physicalism ” in its original form is dropped, the fundamental idea is retained that the concept of “ the unity of science ” is to be formulated in terms of the language of science. In

<sup>1</sup> Carnap: *The Unity of Science*.

Carnap's words: "The question of the unity of science is a problem of the logic of science, not of ontology."<sup>1</sup>

The "question of the unity of science" is regarded as the question of showing that the various different "languages" of the different sciences all have a formal relationship to a single "universal language," such that the statements in each special language are "reducible" to statements in the "universal language."

Carnap deals first with the problem presented by the terms employed by the special sciences. He proceeds to define a sense in which a term is "reducible" to other terms.

"We know the meaning (designatum) of a term," he writes, "if we know under what conditions we are permitted to apply it in a concrete case and under what conditions not." Then: "If a certain term,  $x$ , is such that the conditions of its application . . . can be formulated with the help of terms  $y$ ,  $z$ , etc. . . . we call  $x$  reducible to  $y$ ,  $z$ , etc."<sup>2</sup>

The statement of the way  $x$  is reducible to  $y$ ,  $z$ , etc. is called a "reduction statement," and the terms  $y$ ,  $z$ , etc. are called a "reduction basis" for  $x$ . If all the terms of one "language" are reducible to terms belonging to another "language," then the terms of the latter are called "a sufficient reduction basis" for the statements of the former.

Carnap now makes little difficulty about finding a single language whose terms provide a "sufficient reduction basis" for the language of all the sciences. This is the language in which we formulate direct observations. For the conditions under which "we are permitted to apply" the terms of every empirical science are formulable in observational terms. These terms Carnap calls "observable thing-predicates." And so he restates the basic "thesis" of "the unity of science" as follows:

"The class of observable thing-predicates is a sufficient reduction basis for the whole language of science."<sup>3</sup>

Thus, "the unity of science" consists in the "reduction" of everything that is said in every science to terms of "observable thing-predicates."

<sup>1</sup> Carnap: *Logical Foundations of the Unity of Science*, I.

<sup>2</sup> *Ibid.*, III.

<sup>3</sup> *Ibid.*, IV.

Carnap goes on to explain that this “ reduction ” provides the basis for a further “ unity of laws ” among the sciences.

Can the laws of one science be derived from the laws of another science? he asks. In particular, postulating the general division of the sciences into physical and biological sciences, can the laws of the biological sciences be derived from the laws of the physical sciences? If they can, there is established a “ unity of science ” in the further sense of a “ unity of laws.”

Carnap answers that because all scientific statements are reducible to terms of “ observable thing-predicates,” “ there is a common language to which both the biological and physical laws belong, so that they can be logically compared and connected.” But this is not the same as to say that one set of laws is actually derived from the other. This question, he says, must remain open. Thus he concludes:

“ There is at present no unity of laws. . . . But there is a unity of language in science, viz., a common reduction basis for the terms of all branches of science.”<sup>1</sup> And this “ common reduction basis ” provides the condition for the possibility of a “ unity of laws,” although such “ unity of laws ” is still to be realised and may, perhaps, never be actually demonstrated.

If the above is disentangled from the technical jargon in which it is presented, what does it amount to in essence? Quite clearly, it amounts to saying that all the sciences agree in giving rules for deriving statements of the sort that can be directly compared with observations; or more simply still, that all the sciences agree in giving rules for predicting observations.

And it adds that this provides the formal possibility of formulating scientific laws in such a way that the laws of all the sciences can be formally derived from a single basic law, though this possibility has not been realised to date and may never be realised.

Thus physics, for example, consists of formulæ relating to the kind of observations recorded by physicists, biology consists of formulæ relating to the kind of observations recorded by biologists, and one day it may be possible to devise a formula embracing both sets of recorded observations. “ Unified science ” is science presented as a language, or as a set of

<sup>1</sup> Carnap : *Logical Foundations of the Unity of Science*, V.

languages, reducible to terms of "observable thing-predicates," i.e., to terms of the data of observations, i.e., to *perceptions, sensations, sense-data*.

Thus we are presented with a theory of "the unity of science" according to which the unity of the sciences consists in their all "reducing" to statements about observational data—not in their dealing with different aspects of the objective world, which are investigated by the empirical techniques of the various sciences.

We are presented with a theory of the "unity of science" according to which the possibility of relating the theories of one science to the theories of another science arises from the formal possibility of inventing more comprehensive formulæ about observational data—not from the objective inter-connection of the aspects of the world studied by the separate sciences, which may be revealed by deeper and more comprehensive investigation.

In connection with what Carnap calls "the unity of laws" he appears to suggest that if this "unity of laws" is ever realised—and to realise it would be the final achievement of "unified science"—then this will be done by the discovery of some extremely comprehensive formula from which may be deduced all the special laws of all the physical and biological sciences. Thus he holds out the prospect of discovering some single basic formula of the universe. The question "remains open" as to whether such a formula will ever be found, but to seek for it is clearly the goal of science.

Thus, just as the semantic analysis of the language of science exactly corroborated the conclusion of the idealist physicist Eddington, that "the whole subject matter of exact science consists of pointer-readings and similar indications," so it also exactly corroborates Eddington's final conclusion in his last work, when he set out to discover a unitary formula of the universe. This is the point of view of idealism pure and simple, that the whole universe is the manifestation of some divine mathematical concept.

In short, the "unity of science" is to be realised, first of all, by reducing all the sciences to statements correlating observational data; and is then to be completed by the discovery of a single formula from which all correlations can be deduced.

For the *International Encyclopædia*, “ the question of the unity of science is a problem of logic, not of ontology,” i.e., it is a question of semantical juggling with the “ language of science.”

But the possibility of the unity of science, and the process of its realisation in the development of scientific theory, does not rest on the logical-semantic properties of words, but on the material foundation of the real unity of the world.

“ The real unity of the world,” said Engels, “ consists in its materiality. And this is proved, not by a few juggling phrases, but by a long and tedious development of philosophy and natural science.”<sup>1</sup>

Science is unified in proportion as it presents a more and more connected picture of the material world, and this unity cannot—as Lenin insisted in his commentary on the above passage from Engels—be deduced from the properties of thought and language, but only “ from the objective reality which exists outside us.”<sup>2</sup> Nor can it issue in any single formula of the universe.

The unity of science is progressively realised in the course of scientific investigation itself, which discovers the inter-connections of material processes and the laws of motion of nature and society. It is the progress of scientific knowledge that creates unified science, and unified science is a weapon of enlightenment and material progress. According to the *International Encyclopædia*, on the other hand, unified science is science doctored by an application of semantical rules, reducing all scientific theories to formulæ correlating recorded observations and predicting future observations, and then seeking for a single master formula from which all the rest can be deduced.

Concealed behind the semantical theory of the “ unification ” of science by the construction of a single scientific language into which the separate languages of all the separate sciences can be translated, and behind the myth of a single master formula of “ unified science,” is the fact that the entire positivist approach is directed against the real unity of science.

For the entire approach is clearly based on the uncritical acceptance of the division of science into a number of separate “ disciplines.” It takes its stand, not on the unity but on the

<sup>1</sup> Engels: *Anti-Duhring*, Part I, ch. 4.

<sup>2</sup> Lenin: *Materialism and Empirico-Criticism*, ch. 3, section 4.

disunity of science. Its starting point is the separation of the sciences one from another. And in face of the fact of this disunity and disruption of science into separate parts, it postulates a merely fantastic, dream unity, which cannot be achieved in the actual practice of the sciences but only in the imagination of philosophers, through the formal construction of a "universal language."

All of this, it may now be added, bears witness to the fact that the positivist philosophy has deep roots in the character of the sciences and of their development under capitalism. The sciences have developed with the development of bourgeois society. And just as the development of capitalism has been anarchic, unplanned, unco-ordinated, so it has been with the development of the sciences. Scientists have been compelled to work in isolation, on a series of separate problems. This has bred the empiricism and specialisation which is so characteristic of bourgeois science, and this in turn has received expression in the positivist philosophy of science, which regards the job of the scientist as being to record his observations and to write down formulæ and laws correlating them.

This philosophy dates right back to the British empiricists of the 18th century. And just as it expressed the narrow specialisation of science, so it also served and serves the turn of the reigning bourgeoisie by depriving science of any tendency to militant materialism. If science is only correlating observations and not discovering the laws of motion of the real, objective world, then science leaves plenty of room over for religion or for any species of obscurantist teaching which is current in the capitalist world.

Just as capitalist production has created the conditions for passing over to planned, socialist production, so bourgeois science, by its achievements, has created the conditions for planned, unified science. The positivist approach is directed against the unity of science and, therefore, against the progress of science. On the other hand, the real unity of science is to be achieved only by the organised pressing forward of research in all fields of science in accordance with a single plan—directed towards a single practical goal, the enlargement of knowledge in the service of the people.

This is in fact the direction which is given to science by

socialism. In the socialist Soviet Union science has already advanced far in this direction. There science has been freed from the shackles which hinder its advance in the capitalist world, where it is more and more subjugated to the capitalist monopolies, its work disrupted, its purpose perverted and its theory riddled with idealist and metaphysical preconceptions. It is precisely the crisis of bourgeois science, the breakdown of its ideology and its disruption into fragments, which is expressed in the semantical theory of “ the unity of science.”



## CHAPTER 18

### PRAGMATISM

#### I. PRAGMATISM AS A VARIETY OF SUBJECTIVE IDEALISM

PRAGMATISM is a peculiarly American trend of positivist thought. It has had its representatives in other countries—such as F. C. S. Schiller in Britain, le Roy in France and Papini in Italy—but has never taken firm roots outside the U.S.A.

In his book *Pragmatism*, William James gave credit for the formulation of pragmatism as a definite philosophical trend to Charles Peirce. “The term is derived from the same Greek word, *pragma*, meaning action, from which our words ‘practice’ and ‘practical’ come. It was first introduced into philosophy by Mr. Charles Peirce in 1878. In an article entitled ‘How to Make our Ideas Clear’ . . . Mr. Peirce, after pointing out that our beliefs are really rules for action, said that, to develop a thought’s meaning, we need only to determine what conduct it is fitted to produce: that conduct is for us its sole significance. . . . To attain perfect clearness in our thought of an object, then, we need only consider what conceivable effects of a practical kind the object may involve—what sensations we are to expect from it and what reactions we must prepare. Our conception of these effects, whether immediate or remote, is then for us the whole of our conception of the object. . . .”<sup>1</sup>

Thus James said that: “the pragmatic method . . . is to try to interpret each notion by tracing its respective practical, consequences.”<sup>2</sup>

Using a homely commercial metaphor, he explained that: “If you follow the pragmatic method . . . you must bring out of each word its practical cash-value, set it to work within the stream of your experience. It appears less as a solution, then, than as a program for more work, and more particularly as an

<sup>1</sup> James: *Pragmatism*, p. 46.

<sup>2</sup> *Ibid.*, p. 45.

indication of the ways in which existing realities may be changed. *Theories thus become instruments, not answers to enigmas, in which we can rest.* We don't lie back upon them, we move forward, and, on occasion, make nature over again by their aid."<sup>1</sup>

Later, James remarked: "Our obligation to seek truth is part of our general obligation to do what pays. The payments true ideas bring are the sole why of our duty to follow them."<sup>2</sup>

"Interpreting" ideas and theories in terms of "their practical consequences," and in this way seeking their "practical cash value," James developed a distinctive conception of the nature of truth, as "a property of certain of our ideas."

"Truth *happens* to an idea. It *becomes* true, is *made* true by events. Its verity *is* in fact an event, a process; the process namely of verifying itself, its veri-*fication*. Its validity is the process of its valid-*ation*."<sup>3</sup>

This "process of verification" is something which we ourselves do with our ideas, making use of them in Peirce's terms, as "rules for action." Thus truth does not consist in the "agreement" of our ideas with a prior and independent reality—either with the objective material world or with the "given" complex of our own sensations; but ideas and theories become true in proportion as they serve us well as "instruments" in practical life.

It will be seen from the above that pragmatism, like other forms of subjective idealism, gives a "method of interpretation" of our ideas and theories. The object of pragmatism is still to interpret "what we mean" by our various statements and to show that "what we mean" is not what both materialism and common sense say we mean. Our statements and ideas do not refer to the objective material world which exists independently of our own experience. Their truth or falsity does not depend on their correspondence or non-correspondence with objective fact. On the contrary, their reference is exclusively to what goes on within the sphere of our own subjective experience, and their truth or falsity depends on how they function "within the stream of experience."

<sup>1</sup> James : *Pragmatism*, p. 53.

<sup>2</sup> *Ibid.*, p. 230.

<sup>3</sup> *Ibid.*, p. 201.

This is the traditional doctrine of subjective idealism, of which pragmatism is therefore merely one of the varieties. For this reason, Lenin concluded that, from the standpoint of materialism, the difference between pragmatism and other forms of subjective idealism was "insignificant and unimportant."<sup>1</sup>

The pragmatist variety is distinguished from other varieties of subjective idealism by its emphasis on "practice." For pragmatism, experience is "practical" experience, that is, it is not merely a stream of sense-impressions, but a stream of experienced results of activities. Ideas do not simply reproduce or copy the elements of experience—their function is not simply to correlate sense-data, to state or predict the results of observations. Ideas are "set to work within the stream of experience," and what they mean is to be interpreted and their truth is to be described in terms of the experienced results of acting on them.

Thus Berkeley had explained that to say "There is a table in my study" means "If I was in my study I might perceive it." The pragmatic variety of Berkeleyism would amend this interpretation so as to bring in, not only my perception, but the whole stream of "practical cash values" with which that perception may be associated. The pragmatist, more practical than Berkeley, would say: "If I was in my study I might not only perceive my table but sit down at it and write a treatise on philosophy which would win me a professorship, a contract for a series of broadcasts and a steady income."

The difference is merely one of emphasis. The pragmatists are at one with Berkeley in denying that things "have an existence distinct from their being perceived." What they emphasise is that our ideas of things refer not merely to given perceptions but to a whole stream of experienced results of activities.

The pragmatic philosophy represents a reformulation of traditional subjectivist ideas in the unique conditions of American life in the latter part of the last century and the first part of the present.

It is characteristically impatient of all general theories, and of "armchair" and introspective types of theorising. It is firmly convinced that the great problem of humanity is to fulfil

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 6, section 4, footnote.

its "obligation to do what pays," and it is satisfied that this obligation can be fulfilled and over-fulfilled by go-ahead people. It seeks to interpret and evaluate all ideas by this standard.

It is characteristic that William James advertised the advantages of his philosophy to contemporary Americans quite in the manner of a high-pressure salesman. The following quotations might almost have been taken from a story by O. Henry.

"Now what kind of philosophy do you find actually offered to meet your need? You find an empirical philosophy that is not religious enough, and a religious philosophy that is not empirical enough for your purpose. . . . I offer the oddly named thing pragmatism as a philosophy that can satisfy both kinds of demand. It can remain religious like the rationalisms, but at the same time, like the empiricisms, it can preserve the richest intimacy with facts. I hope I may be able to leave many of you with as favourable an opinion of it as I preserve myself. . . . On pragmatistic principles, if the hypothesis of God works satisfactorily in the widest sense of the word it is true. . . . When I tell you that I have written a book on men's religious experience, which on the whole has been regarded as making for the reality of God, you will perhaps exempt my own pragmatism from the charge of being an atheistic system. . . . The type of pluralistic and moralistic religion that I have offered is as good a religious synthesis as you are likely to find."<sup>1</sup>

These passages show that, like other forms of subjective idealism, pragmatism also offers its reconciliation of the scientific and religious standpoints. Pragmatism, as Lenin observed, "deduces a God for practical purposes, and only for practical purposes."<sup>2</sup> It regards both science and religion less as theories of the nature of the world than as pointers to ways of action; and each has its place in the regulation of conduct. Both scientific and religious ideas lead to rewarding results—the reward being in this world in both cases; and so one is as "true" as the other.

This aspect of pragmatism attracted the attention of Anatole

<sup>1</sup> James: *Pragmatism*, pp. 15, 33, 299, 301.

<sup>2</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 6, section 4, footnote.

France, and led him to remark: "Just lately pragmatism has been invented for the express purpose of gaining credit for religion in the minds of rationalists."<sup>1</sup>

In point of fact, pragmatism has had a considerable influence in modernistic and liberal protestant theology, not only in the United States. But pragmatism is much more than a method of apology for religion. That is only one of its functions. More than any other form of idealism, it leads to a whole system of capitalist apologetics embracing every sphere of social activity—producing theories pointing the way to secure "practical cash values" in history, law, psychology, education, business and politics.

Comparing pragmatism as a theory of interpretation, a method for "making clear" the meaning of our ideas, with the European varieties of subjective idealism, certain striking differences may first be noted.

For the European varieties, ideas, propositions, theories are to be interpreted as rules for predicting the order of sensations. For pragmatism, they are "rules for action"—"instruments" to help us "move forward, and, on occasion, make nature over again by their aid."

For the European positivists, our idea of an object is to be made clear by stating "what sensations we are to expect from it." Pragmatism adds: "and what reactions we must prepare." The pragmatist does not find "cash-value" just in observing things but rather in "doing what pays," and he is interested in "the payments true ideas bring."

For the European positivists, verification consists in comparing patterns of ideas with patterns which turn up in experience. For pragmatism it consists in "setting our ideas to work." Pragmatists are not interested in the comparison of ideas with given reality, but in finding "ways in which existing realities may be changed."

For Hume's subjectivist and, indeed, solipsist conception of man as a "bundle of sensations," which has haunted bourgeois philosophy in Europe, pragmatism substitutes the conception of man as an agent in practical interaction with his environment, constantly doing, achieving results, changing the objects which environ him.

<sup>1</sup> Anatole France: *The Revolt of the Angels*, ch. 30.

For those content to take words at their face value, these emendations of the traditional subjective idealist position may appear to have much to recommend them. What they express, however, is a philosophy which is not only more aggressive than the traditional forms of bourgeois philosophy in recommending the subordination of every consideration of principle and truth to the pursuit of "cash values," but which is also even more confused and self-contradictory in its theory of knowledge.

The chief and central theoretical difficulty in which pragmatism is involved can be expressed in a preliminary way as follows:

It is true that we need to formulate ideas and theories, not in order to correlate our sense-data, but to inform our conduct and to guide us in "making nature over again" and "changing existing realities." But consciously to change realities supposes the existence of realities for us to change, and a knowledge of their properties, interconnections and laws of motion. It has been well written—though not by a pragmatist—that "freedom is knowledge of necessity." That is to say, we can consciously direct our efforts to intended results in proportion as we know the objective properties and laws of the objects and processes with which we have to deal.

Our working ideas, to serve their purpose as "rules of action," must be made to correspond to real objects and their properties, and must reproduce or "copy" the interconnections and laws of the objective world. As Lenin put it: "Knowledge can be useful biologically, useful in human practice, useful for the preservation of life, for the preservation of the species, only when it reflects an objective truth independent of man. For the materialist, the 'success' of human practice proves the correspondence between our ideas and the objective nature of the things we perceive."<sup>1</sup>

Pragmatism, on the other hand, sees the whole significance of ideas in their pragmatic function as "rules for action," and the only correspondence with reality it will recognise is the correspondence of a plan of action with the successful fulfilment of that plan.

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 2, section 6.

Just as European positivism interpreted ideas as rules for predicting the order of sensations, so pragmatism interprets ideas as rules for conduct. Thus, despite divergences, they are at one in obscuring by their interpretations the fact that we discover the laws of objective material processes, that we are building knowledge of the objective material world. A settled hostility to any materialist view of the world and of human knowledge is a leading feature of pragmatism, as of all forms of positivism.

In the case of William James, this led him, in his later writings, to formulate a philosophy of "pure experience," which he dubbed "radical empiricism."

"My thesis is," he wrote, "that if we start with the supposition that there is only one primal stuff or material in the world, a stuff of which everything is composed, and if we call that stuff 'pure experience,' then knowing can easily be explained as a particular sort of relation towards one another into which portions of pure experience may enter. The relation itself is a part of pure experience; one of its 'terms' becomes the subject or bearer of the knowledge, the knower, the other becomes the object known. This will need much explanation before it can be understood."<sup>1</sup>

The last sentence is undoubtedly correct. But what seems readily explicable is that, denying the reference of knowledge to the objective material world, James should end by agreeing with Berkeley, Mach and numerous other subjective idealist metaphysicians that what alone exists is "pure experience." He goes so far as to assert (what was also asserted by the German phenomenologist, Husserl) that this "pure experience" is absolutely "self-contained": "though one part of our experience may lean upon another part . . . experience as a whole is self-containing and leans on nothing."<sup>2</sup>

With this "radical empiricism," the pragmatist conception of the meaning of ideas was reduced in the end by William James to exactly the same as the traditional subjectivist conception. The "cash-value" of ideas is paid in a currency of "pure experience."

<sup>1</sup> W. James: *Essays in Radical Empiricism*, p. 4.

<sup>2</sup> *Ibid.*, p. 193.

## 2. "EXPERIMENTAL LOGIC"—"LOGIC OF INQUIRY"

In his *Essays in Experimental Logic*, John Dewey, the most prolific writer among pragmatist philosophers, polemises against the idealists who separate human thought from human practice. Thinking, he says, does not start "from the fact that in each human being is a 'mind' whose business it is just to 'know.'"<sup>1</sup> On the contrary: "Thinking is instrumental to a control of the environment, a control effected through acts which would not be undertaken without the prior resolution of a complex situation into assured elements and an accompanying projection of possibilities. . . . Thought . . . is a name for the events and acts which make up the processes of analytic inspection and projected invention and testing. . . . These events, these acts, are wholly natural. . . . Thinking is what some of the actual existences *do*."<sup>2</sup>

Thus thinking is an activity of concrete human organisms in interaction with their environment, and is "instrumental to a control of the environment." Nor is it just "cortical." Dewey further insists: "hands and feet, apparatus and appliances of all kinds are as much a part of it as changes in the brain."<sup>3</sup>

In *Logic, the Theory of Inquiry*, he further amplifies this "naturalistic" view of thinking as follows: "The traits that differentiate deliberate inquiry develop out of biological activities not marked by these traits. . . . If one denies the supernatural, then one has the intellectual responsibility of indicating how the logical may be connected with the biological in a process of continual development."<sup>4</sup>

From this point of view, Dewey likewise polemises against the whole conception, which he sees as a characteristic of all "idealist logic," that thinking has its starting point in "given" data—sense-impressions, sensations, sense-data, or what you will.

Idealist logic, he says, "formulated the problem of logic as the problem of the connection of logical thought with sense-material." But in doing so, it "overlooked its essential feature:

<sup>1</sup> Dewey: *Essays in Experimental Logic*, p. 23.

<sup>2</sup> *Ibid.*, pp. 30, 31.

<sup>3</sup> *Ibid.*, p. 14.

<sup>4</sup> Dewey: *Logic*, p. 25.



control of the environment in behalf of human progress and well-being."<sup>1</sup>

Thinking, he says, is not called forth by the occurrence of a peculiar mode of consciousness or "immediate" knowledge called sense-impression. It is rather the "whole situation," i.e., the entire complex of relationships between man and his environment, that arouses thought. "The conception of thinking as an independent activity somehow occurring after an independent antecedent, and finally effecting an independent result, presents us with just one miracle the more."<sup>2</sup>

To suppose that thought operates with "given" sense-data, he says in his *Logic*, is "a monstrous superstition."<sup>3</sup> The observational data relevant to any genuine process of thinking or of inquiry are always "selected," and have themselves to be "tested." Data, he says in *The Quest for Certainty*, are not "givens" but "takens."<sup>4</sup>

Dewey is equally opposed to the idea that the "logical forms" manifested in thought—the forms of judgment and modes of inference—are in some way eternal, necessary and intrinsic features of thought as a pure and independent mental or spiritual activity. These forms have rather been evolved in the natural history of human thinking, as an enterprise instrumental to control of environment.

"All logical forms (with their characteristic properties)," he writes, "arise within the operations of inquiry and are concerned with control of inquiry so that it may yield warranted assertions. . . . The forms *originate* in operations of inquiry. . . . Inquiry can develop in its own ongoing course the logical standards and forms to which further inquiry shall submit."<sup>5</sup>

"It is astonishing," says Dewey, "that, in the face of the advance of evolutionary method in natural science, any logician can persist in the assertion of a rigid difference between the problem of origin and of nature, genesis and analysis, history and validity. . . ." Yet logicians and philosophers

<sup>1</sup> Dewey: *Essays in Experimental Logic*, pp. 21-22.

<sup>2</sup> *Ibid.*, p. 175.

<sup>3</sup> *Logic*, p. 428.

<sup>4</sup> See *Quest for Certainty*, ch. 7.

<sup>5</sup> *Logic*, p. 4.

persist in regarding thought "as something 'in itself,' having just in and of itself certain traits, elements and laws."<sup>1</sup> They vacillate between regarding the "logical traits" as "resident in mind" and regarding them as necessary features of the ontological structure of the world.<sup>2</sup> Neither view is correct. The logical forms are in no sense "ready made," but "the various forms of propositions . . . mark stages of progress in the conduct of inquiry."<sup>3</sup>

To sum up the essence of these brief extracts. In his writings on logic, John Dewey puts forward a view of thinking according to which:

(1) Thinking is not the activity of "minds" whose business it is just to contemplate and know, but it is an activity of concrete human organisms, arising from interaction with environment and instrumental to control of environment.

(2) Processes of thinking are not based on the occurrence of data of sense, which can be regarded as "given" and ultimate—to be organised, as the Kantians said, in a unity of apperception, or to be analysed and correlated in the ways suggested by the various neo-Kantian and post-Kantian positivists. Thinking does not issue from the "miraculous" occurrence of any such data, but from our interactions with the environment and efforts to control and reshape the environment; and the observational data employed in processes of inquiry have themselves to be obtained, selected and tested.

(3) The logical forms and modes of inference manifested in processes of thinking are not ready-made eternal forms of thought, but are evolved in the process of the natural history of thinking.

In these views about the nature of thinking, Dewey begins by seemingly polemising against idealism—thinking is not an activity of "minds" contemplating "given" sense data, but is a product of the interaction of man and his environment. But out of this seeming polemic against idealism he immediately proceeds to formulate conclusions about the laws of thought, or logic, which are directed against materialism. There is no such thing as logic expressing the necessary rules for the correct

<sup>1</sup> *Essays in Experimental Logic*, p. 93.

<sup>2</sup> *Ibid.*, p. 419.

<sup>3</sup> *Logic*, p. 309.

reflection of objective reality in thought. The task of thinking is not to reflect objective reality more faithfully and more comprehensively, but is to evolve methods and ideas useful and expedient for given practical purposes. Thus Dewey's polemic against certain traditional doctrines of idealism is simply the first step in a polemic against the idea that thought can or should reflect objective reality, and therefore in an argument the conclusion of which is to reinstate the essential content of the very idealist outlook which he professed to be attacking.

Herein appears the essential trickiness of the pragmatic philosophy generally. Under cover of a polemic against idealism, pragmatism always directs its main polemic against materialism, in order to restate the idealist position in different words.

This tricky characteristic of the pragmatist "method" was pointed out by an American philosopher, Harry Wells,<sup>1</sup> who named it "the three step argument." First an attack on idealism; then the assertion of the pragmatic conception of truth as that which "works," in place of the conception of the task of scientific thought to produce a faithful reflection of objective reality; thirdly, the restatement of idealism in different words.

### 3. THE NATURALISTIC VIEW OF THOUGHT

Dewey's pragmatic view of thought has been called "naturalistic." From the point of view of materialism, too, one is bound to take a "naturalistic" view of thought, in the sense of regarding it as "wholly natural," as "what some of the actual existences do" and not as the "miraculous" function of "a mind whose business it is just to know."

But materialism does not regard thought simply as an activity of concrete human organisms, arising "naturally" from interaction with environment, instrumental to control of environment, and so on. For materialism thought is always reflection of reality, of the really existing material world, whatever fantastic forms this reflection may take. For materialism, matter is prior and thought is secondary,

<sup>1</sup> H. K. Wells: *Pragmatism, Philosophy of Imperialism*. New York and London, 1954.

derivative. Thinking is the highest form of movement of matter, produced when matter has reached the high degree of organisation of the human brain, and the objective material world is the source of all thought, which is nothing but reflection of matter, of objective reality existing independent of its reflection in thought.

Dewey's "naturalistic" account of thinking explicitly contradicts and denies the materialist position. For he combines his "naturalistic" view, that thinking is an activity of the human organism, with the denial that objective reality is the source and original of ideas, and with the denial that thought reflects objective, material reality.

Dewey makes a parade of denying that "the mind" or "consciousness" exists as something "in itself." He proposes to show that thinking is "wholly natural," that the logical is continuous with the biological, that thinking is a mode of practical activity instrumental to control of environment, and so on. He makes out that all this constitutes a deadly blow against the errors of idealism. But in fact his real attack is not against idealism but against materialism—against the proposition that all thought is reflection of material reality, which constitutes the very heart of materialism. Under cover of an attack upon certain doctrines of certain schools of idealism he delivers his real attack against the very heart of materialism.

And so, for all his "naturalism," Dewey's philosophy is itself idealist. For denying that thoughts reflect objective reality and that it is objective reality which is the source of our ideas, he affirms that, on the contrary, everything we suppose to exist in the objective world is constituted and determined in the process of thought. Denying that the truth of our ideas consists in their correspondence with objective reality, he affirms that, on the contrary, no objective reality corresponds to our ideas.

Thus Dewey's philosophy, which he parades as "naturalism," in opposition to idealism, is actually itself nothing but a subtle and disguised form of subjective idealism. It is subjective idealism in a new dress of "naturalism," patched up of doctrines about the organism and its environment, of stimulus and response, of the continuity of the logical with the

biological, of ideas as instruments of practice, of truth as that which works in practice.

All these pragmatic doctrines, which have seemed to many to be opening out a new path in philosophy, in fact lead along the well-trodden path of idealism—not along any new path but along a very old path. Behind all the wordy confusion of Dewey's naturalism, one thing is clear—its idealism; amid all the inconsistencies of pragmatism, one thing is consistent—its opposition to materialism.

### *Thinking as "Response" to a "Stimulus"*

According to Dewey, if we take a naturalistic view, and refuse to regard thinking "as something 'in itself,'" then "we have no choice save . . . to conceive of thinking as a response to a specific stimulus. . . ."<sup>1</sup>

Later, this "stimulus-response" view of thinking is further elaborated. Dewey insists that thinking is not a "state of consciousness," nor a "functional operation" of "a peculiar existence" called "consciousness."<sup>2</sup>

"States of consciousness," he says, anticipating the standpoint of behaviourist psychology, should be replaced by "behaviour." Thinking is to be regarded as an "intra-organic" event, which is "continuous with extra-organic events," i.e., it is aroused by "extra-organic" stimuli. It serves, he continues, "as means for the elaboration of a delayed but more adequate response."<sup>3</sup>

That is to say, if features of the environment arouse the "inner" process of thinking, then the motor response to the stimuli in question is delayed while the "intra-organic event" is proceeding; and this process of thinking results eventually in the elaboration of a "more adequate response."

For instance, I am walking along and come to a fork in the road; this arouses a process of thinking, during which I stand still; as a result of the process of thinking I eventually respond to the situation presented by the fork in the road by walking along one of the forks; thus I am able to make a "more adequate response" to that situation, from the point of view

<sup>1</sup> *Essays in Experimental Logic*, p. 93.

<sup>2</sup> *Ibid.*, p. 221.

<sup>3</sup> *Ibid.*, p. 227.

of reaching my destination.—Of course, the process of thinking is not exclusively an “inner” process; it is not, as Dewey has said, purely “cortical.” It includes various forms of overt behaviour, intended to secure “data” to assist the thinking process. For example, I look about for a sign-post, I consult my map, I take my bearings by various landmarks, and so on.

Thinking is to be regarded as essentially an “intra-organic event” occurring in response to “a specific stimulus.” This does not imply that the thinking process does not involve in its course various forms of overt behaviour. Nevertheless, the function of the thinking process is that, occurring in response to “a specific stimulus,” it serves “as means for the elaboration of a delayed but more adequate (motor) response” to that stimulus.

What then, is the type of situation, or “specific stimulus,” which arouses thinking? For clearly, not every stimulus arouses thinking.

It arises, says Dewey, “because of the appearance of incompatible factors within the empirical situation,” i.e., it arises “when there is something seriously the matter, due to active discordance . . . when a situation becomes tensional.”<sup>1</sup>

Thinking issues “from an effort to get out of some trouble, actual or menacing.”<sup>2</sup> Successful thinking issues in knowledge, and “to place knowledge where it arises and operates in experience is to know that, as it arose because of the troubles of man, it is confirmed as reconstructing the conditions which occasioned those troubles.”<sup>3</sup>

The meaning of these remarks will become plain if one takes as an illustration the example I have just given of the thought-process aroused by coming to a fork in the road. Here then are “incompatible factors”—the two roads, only one of which can be the right one; there is “active discordance” and “the situation becomes tensional”—I cannot go along both roads, but must go along one of them. Under the “specific stimulus” of this tensional situation I have to think out which road to take, and my thinking is my effort to find out how to “get out of the trouble” in which I am involved. Dewey himself gives

<sup>1</sup> *Essays in Experimental Logic*, pp. 10, 11.

<sup>2</sup> *Ibid.*, p. 23.

<sup>3</sup> *Ibid.*, p. 73.

a similar example (which I shall refer to later) of a man who has to do some hard thinking because he has lost his way in a wood.<sup>1</sup>

Regarding thinking as an "intra-organic" event occasioned by the stimulus of a tensional situation and leading to a delayed but more adequate response to a situation, the *only* connections which Dewey is able to recognise between thoughts, as intra-organic events, and the external (or extra-organic) world, are: (a) the connections between a specific stimulus and the response which it arouses, and (b) the connections between a tensional situation and the eventual pattern of behaviour which is elaborated to resolve the tension.

This means that, under cover of a seeming polemic against idealism and the use of pseudo-scientific phraseology about "stimulus," "response," "intra-organic" and "extra-organic," Dewey has contrived to cut off the approaches to any scientific materialist view of the nature and development of thinking and the relation of thoughts and things, and to lay the basis for a restatement of idealism.

### *The Genesis of Thinking in Social Production*

(a) Dewey repeatedly asserts that thinking arises "when a situation becomes tensional," "because of the appearance of incompatible factors within the empirical situation," "from an effort to get out of some trouble." Of course, we do have to exercise thought upon such occasions. But do these assertions provide anything approaching an adequate picture of the genesis of thinking? All animals continually have to face "tensional situations" and those which survive succeed in elaborating patterns of behaviour which resolve such tensions more or less successfully. But they do not all think. Reflective or conceptual thinking is a peculiarly human activity. And its genesis and nature is connected with what is peculiarly human.

In *Logic, the Theory of Inquiry*, Dewey speaks of the "biological matrix" of thinking, and says that "the logical," i.e., processes of conceptual thinking, is "connected with the biological in a process of continual development." He had in mind the way in which the function of thinking develops out of the "natural" interactions of the human organism with its environment.

<sup>1</sup> *Essays in Experimental Logic*, ch. 8.

"An organism," he insists, "does not live *in* an environment; it lives by means of an environment."<sup>1</sup> Thinking, then, arises in the way we live "by means of" our environment, and serves us to find the way to overcome the "troubles" which arise in such living.

So far, so good. But the human organism, which thinks, is one which has evolved certain important biological attributes, namely, the human brain and hands, which are evolved from the brain and hands of the higher apes which stand next below us on the scale of evolution, but which belong to man alone. Without our hands our brains would not be of much use to us, and without our brains we would not think. The logical has, then, developed out of the biological thanks to the human brain and hands.

But the way man uses his brain and hands, in co-operative, social production, immediately leads to the position that human living ceases to be merely "biological." Man does not live simply in accordance with biological laws, but in accordance with social laws. And it is in men's social life, whose foundation is the process of social production, that thinking originates and develops. Hence to speak of the "biological matrix" of thinking, as though thinking was generated and developed out of the biological relationship of organism and environment, is to overlook the important fact that the human activity of thinking arises precisely when man emerges from the sphere of the biological and starts his social existence and his social evolution.

In this way Dewey's "naturalism," which leads him to speak of the "biological matrix" of thinking, leads him to render obscure the real social matrix of thinking, and to treat human social activity and social relationships as biological activity and biological relationships. By parading this obscurantism as "naturalism" he seeks to give it a "scientific" and "progressive" appearance. But it is not scientific but obscurantist, not progressive but profoundly reactionary.

It is just this type of "naturalism," the "biological" view of man and of human activities and relationships, which in other contexts manifests itself in racialism and in the social doctrines of eugenics: there is a direct link—none the less direct because

<sup>1</sup> *Logic*, p. 25.



not obvious on the surface—between Dewey's philosophic "naturalism" and those forms of man-hating, pogrom-mongering reaction, which, together with "naturalistic" philosophy, are quite widespread in the U.S.A.

After dealing with the "biological matrix" of thinking, Dewey devotes a chapter to the "cultural matrix." Of course, he knows perfectly well that "man is a social animal." And he expresses this by saying that the environment of man is not merely physical but cultural—social, and that human activities are culturally modified. "Transformation from organic behaviour to intellectual behaviour, marked by logical properties," he writes, "is a product of the fact that individuals live in a cultural environment."<sup>1</sup>

He goes on to devote the chapter mainly to the role of language in the genesis and conduct of thinking. What he does not deal with, however—and he deals with it no more in connection with the "cultural matrix" than with the "biological matrix"—is the basic character of human social activity, of human society and its development, which determines the fact that men create "a cultural environment" for themselves and engage in thinking.

Men, endowed with hands and brains but in various other respects biologically less well equipped than many other animals, have been able to learn how to make and use various tools, for defence against enemies and to secure food and warmth, i.e., to produce their means of subsistence. And tools are social products, their manufacture and use involve social co-operation between individuals, and in turn lead to new, specifically human, forms of social organisation and of social development. It is in learning to use tools for the production of their means of subsistence that men have created human societies and culture. And thinking has been generated and developed in the same process. We have come to use our brains to think, as part of the same process of evolution whereby we have come to use our hands to make tools.

This topic was dealt with some time ago by Marx and Engels, who used the word "labour" to denote the manufacture and use of tools by man. Thus in a chapter in his *Dialectics of Nature* entitled *The Part Played by Labour in the*

<sup>1</sup> *Logic*, p. 45.

*Transition from Ape to Man*, Engels wrote: "Labour . . . is the primary basic condition for all human existence, and this to such an extent that, in a sense, we have to say that labour created man himself."<sup>1</sup>

This was to repeat what Marx and Engels had stated earlier in their joint work, *The German Ideology*: "Men . . . begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence, a step which is conditioned by their physical organisation. By producing their means of subsistence men are indirectly producing their actual material life."<sup>2</sup>

Engels went on to point out that it was labour—the social manufacture and use of tools to produce the means of subsistence—that "widened man's horizon at every new advance. He was continually discovering new, hitherto unknown, properties of natural objects. On the other hand, the development of labour necessarily helped to bring the members of society closer together by multiplying cases of mutual support, joint activity and by making clear the advantage of this joint activity to each individual. In short, men in the making arrived at the point where they *had something to say* to one another. . . . This explanation of the origin of language from and in the process of labour is the only correct one."<sup>3</sup>

Dewey himself has observed that the "natural" development of thinking is inseparable from the development of language as a means of communication. But what he covers up is that the "matrix," to use his own term, of human society and culture, of language and thinking, is to be found in the fact that men co-operate to produce their means of subsistence by social labour, by the manufacture and use of tools.

Dewey says that if we refuse to regard thinking "as something 'in itself'" then "we have no choice" but to regard it as the "response to a specific stimulus," as a mode of behaviour called forth "when a situation becomes tensional." But this antithesis is false. Even though we do not regard thinking "as something 'in itself,'" we need not regard it as merely "a response" to given troublesome situations, preparing the

<sup>1</sup> Engels: *The Part Played by Labour in the Transition from Ape to Man*.

<sup>2</sup> Marx and Engels: *German Ideology*.

<sup>3</sup> Engels: *Loc. cit.*

way for appropriate behaviour patterns to "get out of some trouble."

To regard thinking as a "response" to given environmental conditions is to miss the essence of thinking as a part of human activity. For men, in virtue of human labour, do not just react to a given environment but consciously change the environment and in many respects consciously produce their own environment. And thinking arises, not merely from the external circumstances that "incompatible factors" demand a response, but because human labour and the growth and development of human social organisation set intellectual problems. This is what conditions the genesis of thinking and the forms taken by thought in its development.

When Dewey regards thinking as merely a "response" to the "stimuli" of specific tensions proceeding from the environment, he denies the real material basis of thinking just as effectively as does the "idealist" view which he attacks, which regards thinking as the work of "a mind" whose business it is just to know."

### *Thought as Reflection of Reality*

(b) Regarding processes of thought as occurring simply in response to "specific stimuli" and as serving the function of elaborating patterns of behaviour appropriate to deal with such stimuli, Dewey denies that thought reflects and reproduces external reality. His "naturalism" sees thinking exclusively as a means of elaborating a pattern of behaviour, a "delayed but more adequate response" to a specific stimulus.

According to this view, to speak of thoughts as affording a representation of reality, or to speak of the reflection of the world in terms of thought, is to fall into the "idealist" error of regarding thinking as "something 'in itself.'" But on the contrary, this view itself joins hands with idealism in denying the real connection of thought with the objective, material world, which is reflected in thought.

Conceptual thinking is generated and develops on the basis of human social production. And this fact determines the characteristic of conceptual thinking, that it not only serves to elaborate patterns of behaviour, but does so by reproducing the external world, material things and human relationships,

in conceptual terms, i.e., by elaborating a conceptual or ideal representation of reality.

Dewey says that we must replace "consciousness" by "behaviour." We must not regard thinking as elaborating a reflection of the world in human consciousness, but as elaborating patterns of behaviour. This is to contradict the basic fact of human social behaviour, the labour process, which from its very nature involves the production of a definite mode of consciousness, namely, the elaboration of a reflection of the world in terms of thought.

The conscious character of the labour process was stressed by Marx in the following often-quoted passage of *Capital*: "We presuppose labour in a form which stamps it as exclusively human. A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst of architects from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour process, we get a result that already existed in the imagination of the labourer at its commencement."<sup>1</sup>

The labour process involves the production of ideas which reflect the things and processes with which men are operating in their social productive activity, the results at which they are aiming, and the relationships into which they enter with one another in the process of production.

This does not mean that men are "miraculously" endowed with a "consciousness," to use Dewey's phrase, which is something "in itself." Conceptual consciousness arises quite "naturally" out of the social activity of organisms like men, equipped with brains and hands, and co-operating together in the use of tools to produce their means of subsistence.

With the use of the hands for social production, man's brain evolved what Pavlov has called "the signal system of speech," by the exercise of which man is not only aware of things and his relationships with things through sensations, like the other animals, but forms concepts of the things and processes, and the properties and relationships of things and processes, with which he is concerned in his manifold practical

<sup>1</sup> Marx : *Capital*, Vol. I, part 3, ch. 7, section 1.

activities. There begins the elaboration of concepts and of a conceptual representation of the world. Men begin to think. And their thought is by no means a mere mechanism for elaborating delayed but more adequate responses to specific stimuli, but is a mode of consciousness of the complicated relationships between man and the external world—a reproduction, reflection or representation of the world, elaborated by human brains operating under the conditions of human social production.

Men do not simply invent ideas in response to a series of specific stimuli issuing from external conditions. Conceptual thinking has its origin in social labour, and the formation of concepts is further conditioned by the totality of social relations into which men enter in the production process. Thus there are formed, not separate concepts of this and that, but ways of thinking, systems of ideas, ideologies, which correspond to different stages in the development of the production relations of society, and which represent the ways in which the material world is reflected in the thinking of men who have definite productive forces at their disposal and who have entered into definite social relations of production.

The laws of the production and development of human consciousness are enormously complicated. But the whole process has this material basis. And in its entirety, considered both from the point of view of the individual thinker and of the social production of ideas and ideologies, it has the basic characteristic of being, to repeat once more another passage from Marx, “nothing else than the material world reflected in the human mind and translated into forms of thought.”<sup>1</sup>

Dewey’s “naturalistic” view of thought, then, starting off under the guise of a “scientific” attack on idealist views of thinking, is in essence a restatement of the idealist view which denies that thought reflects the material world which exists independent of all thought. Starting by denying that thought is “something in itself,” and regarding it as a specific “response” to a specific “stimulus,” Dewey continues to regard thought as “something in itself,” since he denies that man’s thoughts are the reflection of the objective world and of man’s actual conditions of material existence.

<sup>1</sup> Marx: *Capital*, Preface to Second Edition.

## 4. KNOWLEDGE AND TRUTH

In the first chapter of *The Quest for Certainty*, Dewey says it has been a basic error of theories of knowledge to have separated human knowledge from human practice.

Practice, he continues, is always attended by risk and uncertainty. But men have tended to seek in knowledge something absolutely certain, unattended by any of the hazards of practical life. For this reason they have tried to find as the object of knowledge something eternal and unchanging. But this is an illusory quest. The task is rather to accept the hazards of practical life and to minimise them by winning knowledge that will effectively give us a greater practical control.

"The quest for certainty becomes the search for methods of control."<sup>1</sup> Such certainty as knowledge possesses is not the "absolute" certainty imagined by idealist philosophers, but is "practical certainty." And it is obtained by experimental methods, by "inquiry."

Dewey quite correctly classes amongst theories which posit the existence of "absolutely" certain knowledge, not only transcendentalist views which maintain that we possess non-empirical modes of knowledge, but also the views of those positivists (such as Bertrand Russell) who suppose that we possess absolutely certain empirical knowledge, namely, "immediate" knowledge of our sense-data (what Russell called "knowledge by acquaintance").<sup>2</sup> In opposition to such views Dewey writes:

"Every special case of knowledge is constituted as the outcome of some special inquiry. . . . Knowledge . . . is the name for the products of competent inquiries. . . . To be knowledge is being *so* settled that it is available as a resource in further inquiry; not being settled in such a way as not to be subject to revision in further inquiry."<sup>3</sup>

*Knowledge as "Warranted Assertibility"*

According to Dewey, the methods of "competent" inquiry which yield products which can be classed as knowledge have

<sup>1</sup> Dewey: *Quest for Certainty*, p. 124.

<sup>2</sup> See *Logic*, ch. 8.

<sup>3</sup> *Logic*, pp. 8-9.

been discovered—and are still being discovered—in the course of social evolution. “We know that some methods of inquiry are better than others in just the same way in which we know that some methods of surgery, farming, road-making, navigating or what not are better than others. . . . They are the methods which experience up to the present time shows to be the best methods available for achieving certain results.”<sup>1</sup> The reliability of such methods has been very well tested, and they yield products which have a practical warrant or guarantee, expressed by calling them “knowledge.”

This means that, according to Dewey, the methods of “competent inquiry” have arisen on a pure “trial and error” basis. Trying all kinds of “methods,” we hit on certain methods which work better than others for particular purposes—they lead to the desired results. And so we provisionally adopt them. They are simply try-outs, not methods adopted because they have a rational basis. Thus Dewey at the outset denies that the methods of obtaining knowledge have any rational basis as methods for the correct reflection of objective reality in men’s ideas.

Dewey contrasts his own view of knowledge with the “doctrine that knowledge is a grasp or beholding of reality without anything being done to modify its antecedent state. . . . Knowing is not the act of an outside spectator but of a participator inside the natural and social scene.”<sup>2</sup> We possess knowledge just in so far as we possess ideas—products of inquiry—which experience teaches us to rely on in a practical sense.

The essential character of knowledge, according to Dewey, is that the possession of knowledge leads to successful practice. Thinking is preparatory to patterns of behaviour. It yields knowledge when it follows certain well-trying methods and so acquires maximum practical reliability. It is this practical reliability that for Dewey constitutes the essential character of knowledge, and not any conformity of thoughts with the objects reflected in thinking.

One might suppose that practical reliability would itself be

<sup>1</sup> *Logic*, p. 104.

<sup>2</sup> *Quest for Certainty*, p. 188.

a product of conformity of thought with reality, just as conformity of thought with reality would be tested by its reliability in practice. Nevertheless, Dewey counterposes his view that practical reliability is a mark of knowledge to any view that in knowledge our thought conforms to objective reality. He is very insistent that, just as knowledge is not a "beholding of reality" by a "spectator," so it has no object which has reality independent of the act of knowing.

"The assumption that the true and valid object of knowledge is that which has being prior to and independent of the operations of knowing" is, he says, a basic error. "The true object of knowledge resides in the consequences of directed action . . . an archetypal antecedent reality is not a model to which the conclusions of inquiry must conform. . . . Known objects exist as the consequences of directed operations, not because of conformity of thought or observation with something antecedent."<sup>1</sup>

Dewey sums up what he takes to be the essential character of knowledge in the phrase that knowledge is "warranted assertibility."<sup>2</sup> That is to say, we know that which we have a practical warrant to assert, i.e., to act upon. And the warrant does not involve that what is known is established as corresponding to the objects we are dealing with, which Dewey calls "an archetypal reality"—but simply and solely that it is the product of an inquiry employing competent methods and so may be relied upon for practical purposes. As for "the object of knowledge," "what we know"—this is not material reality but rather "the consequences of directed action."

Thus, according to Dewey, our knowledge does not unfold a more and more complete and reliable picture of the material universe and our place in it, of the objective laws of motion of nature and society, but rather elaborates a more and more complex and efficient apparatus for calculating the consequences of actions. In this way, Dewey follows Peirce and James in amending the traditional positivism which said that theories, beliefs, knowledge were rules for predicting sensations, by saying that they are rather "rules for action."

This theory of knowledge as "warranted assertibility" has

<sup>1</sup> *Quest for Certainty*, p. 188.

<sup>2</sup> *Logic*, p. 9.



made much work for Dewey's American disciples, who have to try to explain what he meant by it. The obvious method of asking him to explain himself was never found to work in practice. None of his expositions are clear and unambiguous, and it would seem as if verbal obscurity and ambiguity were part of the very essence of this theory of knowledge.

*Truth as Correspondence "Between a Plan and its Execution"*

Meanwhile, it may be observed that Dewey's account of knowledge is closely connected with his views about truth—obviously, because that which is known must evidently be true. I will turn to what he has to say upon this allied topic.

In *Essays in Experimental Logic*, Dewey says that a scientific man will regard truth as "that which is accepted upon adequate evidence."<sup>1</sup> He seems to think that this statement must be accepted by all scientific men even without any evidence at all. But that is open to question. The issues raised will help towards reaching an estimate of Dewey's account of knowledge and truth.

It is doubtless correct that a scientific man will accept as true only "that which is accepted upon adequate evidence." As regards that for which adequate evidence is lacking, he will suspend judgment. But this is not the same as saying that, for science, being true, *truth*, is the same as being accepted upon adequate evidence.

Consider, for example, such a statement as: "There is life on the planet Mars." Because adequate evidence is lacking for or against this statement, a scientific man will certainly not commit himself to saying positively that it is true, or that it is false. But he will certainly allow that it *may* be true, i.e., it may be true *now*, even while adequate evidence is lacking. If some astronomer finds adequate evidence, then the proposition will be entered upon the list of propositions which science regards as true. But few scientific men would say that no proposition was true unless it figured in that list.

Thus it may be true "that there is life on Mars," even though we have as yet insufficient evidence of its truth. It is true if there *is* life on Mars, i.e., if what Dewey would call "the

<sup>1</sup> *Essays in Experimental Logic*, p. 63.

archetypal reality," Mars, has "antecedently" to any inquiry of ours given birth to living organisms. Truth is one thing, evidence is another. But Dewey consistently—or perhaps one should say persistently—refuses to make any such distinction.

Speaking of the "correspondence or agreement" between statement and fact which is commonly supposed to constitute truth, Dewey lays it down that: "The correspondence or agreement is like that between an invention and the conditions which the invention is intended to meet."<sup>1</sup>

This sentence is revealing. Radio, for instance, is an invention intended to aid communication; and it does aid communication, i.e., it corresponds with the conditions it was intended to meet. In the same way, presumably, statements about radio waves help us to construct serviceable radio sets; and so Dewey says that their truth consists in the fact that they do so help us. We are not to say that they are descriptive of objective physical processes, which we can then learn to use for purposes of communication. True statements, though "accepted upon adequate evidence," are, nevertheless, "inventions," i.e., verbal inventions adapted to direct our behaviour towards certain ends; and their truth consists in the fact that with their assistance those ends are attained.

Lest there should be any mistake about this, Dewey devotes a whole chapter to "The Control of Ideas by Fact."<sup>2</sup> In this chapter the episode occurs which I referred to above of a man getting lost in a wood. Luckily he has "an idea of the way home," and by acting on this idea he does succeed in reaching home by the end of the chapter. His idea of the way home, says Dewey, was thereby shown to be true. His idea of the way through the wood was controlled by the facts.

Are we to say, therefore, that the idea on the basis of which he planned his route home corresponded with the actual objective lay-out of the wood?

By no means, answers Dewey, for that would be to postulate the wood as "an archetypal antecedent reality," or "model to which the conclusions of inquiry must conform." The agreement or correspondence of his idea with fact was only "the agreement between a plan and its execution."

<sup>1</sup> *Essays in Experimental Logic*, p. 24.

<sup>2</sup> *Ibid.*, ch. 8.

In the same way, presumably, a traveller in London, or New York, or Moscow, who studies the map of the underground railway system with a view to reaching some destination, must not regard that map as corresponding to any "archetypal" tunnels "antecedently" existing beneath his feet. He is simply to regard it as a plan of action, which many citizens have found useful, and in which he, too, may repose confidence.

Of course, the map does serve, and is intended to serve, as a plan of action. But the invariable success of journeys correctly planned on the basis of such a map is none the less due to the fact that the map does conform—and was intended by the people who drew it up to conform—to "an archetypal antecedent reality," namely, the underground railway.

Considering such examples as these, it appears that the scientific men and practical men of action, of whom John Dewey writes, wander through woods, or travel on railway systems, which have no "antecedent reality." They differ from the beings who figure in other subjective idealist writings because they do much more than "observe." They respond to stimuli. They draw up plans and execute them. They go busily about their worldly affairs. But the world they inhabit seems nevertheless quite as elusive as the world of "sense-data" or of "pure experience."

It is not surprising, therefore, that Dewey's account of both knowledge and truth should be extraordinarily confusing.

In his *Logic*, Dewey carries his views on truth a stage further by explicitly denying that "propositions" are true or false at all. Propositions, he says, are to be regarded as "means," and "since means as such are neither true nor false, truth-falsity is *not* a property of propositions. Means are either effective or ineffective, pertinent or irrelevant, economical or wasteful. . . ."<sup>1</sup>

It is not the proposition but the act of asserting it, one gathers, that is true or false. And it is true when it is the product of a competent inquiry and leads to the achievement of the goals to which that inquiry was directed.

The real significance of this view about truth can be brought out by considering a simple example. Take such a proposition as "the manifest destiny of the United States is to dominate

<sup>1</sup> *Logic*, p. 287.

the world." Since it was first suggested by the pragmatist historian John Fiske, this proposition has been often asserted.

The pragmatist "logic" declares that there is no question of this proposition being "true" in the sense that there is any basis for it in objective reality. It is simply a means, effective or ineffective, pertinent or irrelevant, to securing some desired end—that end being, presumably, world domination. Does "competent inquiry"—that is to say, the process of trying it out—suggest that it is an effective means to that end? Yes it does, for the reiterated assertion of this proposition, accompanied by other "effective" and "pertinent" measures, has produced some positive results in many quarters. Hence the assertion of this proposition is a true assertion. The pragmatist logic, the pragmatist theory of truth, justifies such assertions as this. And that, of course, is the real basis for the assertion, and the continued assertion, of the pragmatist logic and the pragmatist theory of truth.

## 5. THE EXISTENCE OF THE MATERIAL WORLD

Dewey speaks of the operations of thinking and knowing as amongst the natural operations of men, a certain species of living organism inhabiting the planet Earth. He speaks as if men and the earth and the whole material universe did really exist, and as if he were giving as objective an account as he is able of some of the things that actually happen.

In other words, he speaks as though this account of his did approximately correspond to what actually takes place, independently of his thinking about it and inquiring into it. In the next breath, however, he says that the products of inquiries—which must include his own inquiry about thinking—do not and cannot conform with "an antecedent reality," but that "known objects" only "exist" as the consequences of directed operations.

If one says, what I believe is perfectly correct, that thinking and knowing are "natural" operations of men, then one is bound to seek an account of thinking and knowing which will allow of our thoughts reflecting objective reality and of our inquiries producing knowledge which is knowledge of objective reality. Dewey gives no such materialist account, and the

result is subjective idealism—but subjective idealism put forward with a maximum of obscurity in its formulation.

This obscurity is such that readers of Dewey's voluminous works are usually left in a state of bewilderment as to whether he supposes that the material universe which we inhabit does exist or not. In one passage he will speak as though it does exist, and then will go on to qualify its existence and what we know of it with an avalanche of phrases which lead to only one clear conclusion, and that is that in his opinion it does not exist after all.

In *Essays in Experimental Logic* he speaks of the world "as a logical problem."<sup>1</sup> He proceeds to say: "What is doubtful is not the existence of the world but the validity of certain customary yet inferential beliefs about things in it. It is not the common-sense *world* which is doubtful . . . but *common-sense* as a complex of beliefs about specific things. . . . Hence never in any actual procedure of inquiry do we throw the existence of the world into doubt, nor can we do so without self-contradiction. We doubt some received piece of 'knowledge' about some specific thing of that world, and then set to work, as best we can, to rectify it."<sup>2</sup>

According to this, the world does exist: there is no manner of doubt about it. However, when it comes to "the validity of certain customary yet inferential beliefs about things in it," then it is another story. And Dewey proceeds to qualify our "common-sense beliefs about specific things" to such effect that the very existence of "the common-sense world" is not merely placed in doubt but is very definitely denied.

### *The Determination of the Indeterminate*

The first point to note about what Dewey has to say on the existence of the material world is that, according to him, the world is "indeterminate." Whatever kind of existence the world has, it is an "indeterminate" existence.

This reduction of the existence of real objects to a state of formless indeterminacy is connected with Dewey's view that "objects of knowledge" are in some way "constructed" by the operations of knowing. In several passages in his *Logic*,

<sup>1</sup> *Essays in Experimental Logic*, ch. 11.

<sup>2</sup> *Ibid.*, p. 302.

Dewey speaks as though this "construction" of the objects of knowledge were a process of the fashioning of some vague pre-existent material into new objects, and more definitely as though it were a making determinate of something which before was somehow formless and indeterminate. Objects and their properties become known to us, says Dewey, as a result of a procedure of "inquiry." And of this procedure of inquiry he has the following to say:

"Inquiry effects *existential* transformation and reconstruction of the material with which it deals; the result of the transformation . . . being conversion of an indeterminate problematic situation into a determinate resolved one."<sup>1</sup>

In accordance with this view, he gives the following definition of the procedure of "inquiry":

"Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole."<sup>2</sup>

And later: "Judgment is transformation of an antecedent existentially indeterminate or unsettled situation into a determinate one."<sup>3</sup>

He insists that "inquiry effects existential transformation." There is, I think, a clear sense in which this statement is perfectly true, in contrast, for example, to those views which Dewey criticises, according to which the acquisition of knowledge consists in a mere "passive beholding."

"Existential transformation" is, in the first place, effected in inquiry in as much as there takes place a transformation in the existing relationships between ourselves and external objects. When we come to gain knowledge about an object, that object, which was unknown to us before, becomes known; its nature and properties, which before were indeterminate and problematic so far as we were concerned, are determined by us; in this way, as Engels once expressed it, a "thing-in-itself" is transformed into a "thing-for-us."

And, in the second place, this transformation involves our doing something with the thing in question.

<sup>1</sup> *Logic*, p. 159.

<sup>2</sup> *Ibid.*, p. 105.

<sup>3</sup> *Ibid.*, p. 220.

For example, take an inquiry into the constituents of water, which consists in separating out the two components, oxygen and hydrogen. In this case we have changed water—we have in fact destroyed it, and in place of it there is left oxygen and hydrogen. Again, take an inquiry about the stars, carried out by means of astronomical instruments. In this case we do not change the stars, but we do perform operations with the light coming from them.

In all such cases an “existential transformation” is effected. And this transformation is of such a character that by means of it we have produced certain results which make determinate for us what was indeterminate for us before.—For example, we have determined that water is composed of oxygen and hydrogen, or that a given star is of such and such a size and so far away.

The “existential transformation,” then, effected by inquiry involves the following features.

(1) We do certain things with the objects of inquiry, bring about certain changes, certain results.

(2) In consequence, a new relationship is established between ourselves and external objects, in virtue of which we know more about them. An indeterminate idea becomes transformed into a more determinate one, and along with this our practical helplessness or uncertainty in relation to certain objects and processes becomes transformed into confidence and knowing what to do and what to expect.

Dewey, however, writes as though when we produce certain results through the operations performed in the process of inquiry, then we create something, an “object of knowledge,” with certain determinate features, which did not exist before. He writes as though when we separate water into oxygen and hydrogen, then we create a situation in which water is composed of oxygen and hydrogen, whereas previously there was just water, indeterminate as to its composition.

But water was always composed of oxygen and hydrogen. What we have created is rather the situation in which we can ourselves separate out its two components and so come to know of what elements water is composed.

Dewey thus confuses the transformation of the relationship between us and an object, which takes place through our doing

something with the object and which results in our having a more determinate idea of the object, expressed by us in terms of the results of our operations, with the creation of a new sort of object, an "object of knowledge." That an object becomes known involves, he seems to think, that a new object is created. The determination which we make of the properties of an object amounts, in his view, to creating a new object with those determinations. And those determinations did not exist at all in the "antecedent" situation, which was "existentially indeterminate."

Thus when Dewey speaks of "the existence of the world," which, he says, is "not in doubt," he is referring to the existence only of a quite "indeterminate" world. All determination, all distinction and composition is somehow introduced into the world by ourselves. We are in fact presented with something like a new version of the idealism of Kant.

### *"Brute Existence"*

According to Dewey, then, the indeterminate world is determined by us in the process of inquiry, when we create determinate objects of knowledge. He adds that what we start with, before inquiry creates objects of knowledge, is simply "brute existence."

"Certain brute existences, detected or laid bare by thinking but in no way constituted out of thought or any mental process, set every problem for reflection and hence serve to test its otherwise speculative results," he writes. And he continues:

"It is simply insisted that as a matter of fact these brute existences are equivalent neither to the objective content of the situations, technological, artistic or social, in which thinking originates, nor to the things to be known—the objects of knowledge."<sup>1</sup>

What he "insists" about these "brute existences" is that, while they constitute the starting point of knowledge, they are not the objects of knowledge; the objects of knowledge are created in the course of inquiry.

He goes on to say that these "brute existences" can be compared to the "raw ore" which is wrought into a manufactured article. They are merely "means" for making the useful

<sup>1</sup> *Essays in Experimental Logic*, p. 35.



finished product—the object of knowledge. What is more, they have their being only “in some particular coexistence in the situation where they originate and operate.” Like the ore, they are “extracted” for use by us for certain purposes; but unlike the ore, they only come into being in the process of being extracted and used.<sup>1</sup>

In this obscure talk of “brute existences,” Dewey is distinguishing between the finished or semi-finished product of knowledge—the object of knowledge, which is constructed and created by us in the process of inquiry—and the crude or brutish starting point of knowledge, which, whatever it may be, is not a determinate object of knowledge.

Dewey and his followers like to regard this as an “evolutionary” theory of knowledge. There is a “continuity of development,” Dewey said, from “the biological” to “the logical.” And those changes “which terminate in the things of human experience form a history, or a set of changes marked by development or growth.”<sup>2</sup>

But what is this “history” of “development”? According to Dewey it is the process whereby, from the extraction of brutish raw material, which is simply possessed or “had” as a “means” or “instrumentality” for knowledge, we proceed, somehow or other, to construct from this raw material objects of knowledge. The “things of human experience” come to exist only at the termination of this process—they are the constructed objects of knowledge.

However Dewey may seek to embellish this “evolutionary” theory with statements about the interaction of the organism and the environment and about the development of the biological into the logical, it is and remains nothing but a form of subjective idealism.

“All the choir of heaven and furniture of earth, in a word all those bodies which compose the mighty frame of the world, have not any subsistence without a mind,” wrote Berkeley. “Their being is to be perceived or known.” Dewey agrees with him. The things of human experience, he says, exist only as the termination of a process of development or growth in

<sup>1</sup> *Essays in Experimental Logic*, p. 38.

<sup>2</sup> *Problems of Men*, p. 198.

the course of which they are constructed out of crude raw materials.

Dewey gives Berkeley's subjective idealism a typically Kantian twist. The objects of knowledge are not the crude data of sense, which are merely extracted and possessed as instrumentalities of knowledge; starting from such "brute existences," the objects of knowledge are constructed in the course of a process of development or growth which terminates in "the things of human experience."

Because he says that "certain brute existences" are the starting point of every inquiry, Dewey claims that "the position taken in the essays is frankly realistic."<sup>1</sup>

This claim should deceive no-one. If by "realism" is meant the recognition of the objective existence of the real material world, independent of its being known—and such realism is an indispensable component of a materialist position, and is a step towards materialism—then what Dewey says is certainly not "realistic." He says that knowledge has its starting point in "certain brute existences" which are "extracted" in the process of knowing and exist only as "means" in that process, and that knowledge issues in fashioning, out of the material of these brute existences, objects of knowledge which do not "exist antecedently" but are created in the process of knowing. This "position" is not realism. By whatever pragmatic, biological or behaviouristic terminology it may be disguised, it is idealism pure and simple.

Dewey's evolutionary theory is simply an imaginary idealistic scheme of the evolution of consciousness, severed from its material basis.

Writing of the real evolution of consciousness and knowledge, Marx and Engels said: "The premises from which we begin are . . . real premises from which abstraction can only be made in imagination. They are the real individuals, their activity and the material conditions under which they live, both those which they find already existing and those produced by their activity."<sup>2</sup>

What Dewey does is precisely to make "abstraction in the imagination" from these "real premises." Instead of real

<sup>1</sup> *Essays in Experimental Logic*, p. 35.

<sup>2</sup> Marx and Engels: *The German Ideology*.

individuals, their activity and the material conditions under which they live, we have "brute existences" and their transformation into "objects of knowledge." The former are supposed to be "extracted" and the latter "manufactured"; and the entire abstract account of this alleged ideal process of extraction and manufacture relegates the real material world, to which all activity belongs and to which all knowledge relates, to a state of "existential indeterminateness."

Dewey separates the evolution of consciousness from its real, material premises. And he divorces our idea of an object, in which is expressed such knowledge of it as we have gained, from the real material object existing outside the mind, of which our idea is a partial and incomplete reflection.

We ourselves construct our own idea of an object, but we construct it as the image of an object which exists independently. All that is contained and involved in the actual existence of material objects surpasses at every stage of the development of knowledge that which we have come to know about them and to express in our ideas. The real object of knowledge always contains infinitely *more* than is expressed in our knowledge of it.

For Dewey, on the other hand, it contains infinitely *less*. For him the real object of knowledge, which exists independently of our knowing it, is nothing, a mere state of indeterminateness. All that he recognises is the process of the construction of our idea of an object. He recognises that we can go on indefinitely adding fresh determination to our idea of an object. He does not recognise that these determinations constitute knowledge only in so far as they reflect the real and inexhaustible properties of the real object, which exists independently of our idea of it.

"Nature is infinite," wrote Lenin, "but it infinitely *exists*. And it is this sole categorical, this sole unconditional recognition of nature's *existence* outside the mind and perceptions of man that distinguishes dialectical materialism from relativist agnosticism and idealism."<sup>1</sup>

And it is the non-recognition of nature's existence that constitutes Dewey's philosophy, and pragmatism in general, as a system of idealism.

<sup>1</sup> Lenin: *Materialism and Empirio-Criticism*, ch. 5, section 2.

*Unknowability of the Real World*

As for the "brute existences" which Dewey says "set every problem for reflection and hence serve to test its otherwise speculative results," and which constitute the raw material or ore out of which the manufactured "objects of knowledge" are fabricated—from what mysterious mine this ore is "extracted" by us in order to use it as an "instrumentality" of knowledge, he does not say and cannot say.

Like hundreds of other idealists he regards all the objects of knowledge, all the "things of human experience," as constructions of the mind. The real world remains for him utterly unknown and unknowable. It impinges on our consciousness only as "brute existence," which we fashion into objects of our own devising. Behind the manufactured object of knowledge and the extracted raw material for its manufacture, there lies the unknown and unknowable thing-in-itself.

Dewey said that the "brute existences" which constitute the starting point and also the test of every inquiry were not "equivalent to the objective content of the situations, technological, artistic or social, in which thinking originates." They are not equivalent to the objective content of the situation in which a process of thinking or inquiry originates, but are something which we extract from that situation for our own purposes.

Thus he is saying that we find ourselves in a certain situation, "technological, artistic or social"; this situation has an objective content of its own; we extract from it "certain brute existences" which serve as instrumentalities for our constructing "objects of knowledge"; in constructing those objects of knowledge out of the brute existences we are changing the initial situation, and they serve us as means for changing it further in a controlled way in accordance with our desires. And he calls this a "frankly realistic position."

But if we look into it a little further we shall ask, what is the "objective content" of any situation in which thinking originates? If we begin to inquire into this, with a view to saying what the objective content is, then, of course, we must institute a process of inquiry to determine the objective content; and when we have determined it, then it is an "object

of knowledge," and so, according to Dewey, not anything which "existed antecedently" but something constructed in the course of the inquiry. Therefore for him to speak, as he does, of the objective content of the situation in which thinking originates, and from which the brute existences which set the problems for reflection were extracted, is a mere empty phrase. This objective content is unknown and unknowable, according to him. We may extract brute existences from it and go on to construct any number of objects of knowledge—but the "antecedent" objective situation from which these brute existences were extracted and from which the process of inquiry originated is unknowable and inexpressible.

Dewey's views about the existence of the material world are a tissue of idealist inconsistencies from start to finish.

"Never do we throw the existence of the world into doubt," he announces—and then explains that every known object exists only as a product of our own activity of thinking about it.

He speaks of thinking and knowledge as a process of nature—and then explains that this process of nature is a process of the manufacture in consciousness of natural objects themselves.

In so far as Dewey allows things to exist independently of their being objects of thought, he treats them as unknowable, or as mere indeterminate material awaiting determination; and whatever is known is always some object of our own construction, and its known determinations are fabricated by the human mind. These constructions or fabrications are made, he says, for the sake of practice, and are instrumentalities for the enriching of human life and the control of environment, of external nature; but he denies that the test of practice tests the correspondence between our ideas and objective reality.

In all this philosophising there is not a single clear idea, not a single statement which carries an unambiguous meaning. Yet a clear and unambiguous conclusion emerges from it. It is that Dewey's philosophy is a philosophy of subjective idealism, which holds that the world we know is a product of our own minds and has no objective existence independently of its being perceived and thought about. And that it is a philosophy of idealist relativism or irrationalism, which holds that while there is a process of continual shaping and reshaping of our ideas, according to circumstances and varying practical

requirements, these ideas do not reflect objective reality and there is no test of their correspondence with objective reality.

## 6. THE ENTERPRISE OF SCIENCE

It remains briefly to examine what Dewey has to say on the subject of science, and then summarise some general conclusions about his philosophy as a whole.

He regards science as "a practical art." It is, he says, "a pursuit, an enterprise. . . ." <sup>1</sup> He describes it as "a highly specialised industry. . . . Such a specialised mode of practice that it does not appear to be a mode of practice at all." <sup>2</sup> Science, he insists, is not just concerned with formulating generalisations, and we cannot separate "pure" from "applied" science—science as concerned with generalisations from science as applied to particular practical ends. <sup>3</sup> The "laws" formulated by science, which are "supposed to govern phenomena," are really "a way of transacting business effectively with concrete existences, a mode of regulation of our relations with them. . . ." <sup>4</sup>

When this view of science is contrasted with the older positivist view that science is concerned with predicting the order of sense-data, or that science is concerned with formulating generalisations based on accepted protocol propositions, then it may at first seem that there is a great deal of truth in it. It is certainly true that science is not just "pure theory," that it is based on "highly specialised" techniques, and that it becomes "a mode of regulation" of our dealings with "concrete existences." Yet this truth is expressed from a most characteristic point of view. To call science "an enterprise," a "highly specialised industry" and "a way of transacting business effectively" is very obviously to speak of science from the point of view of the modern "practical" business man, and this point of view gives to what is said about science a characteristic twist or distortion.

In stressing that science is "a mode of practice," Dewey proceeds to regard scientific results simply as indicative of

<sup>1</sup> *Essays in Experimental Logic*, p. 413.

<sup>2</sup> *Ibid.*, p. 436.

<sup>3</sup> *Logic*, ch. 21.

<sup>4</sup> *Quest for Certainty*, p. 199.

“acts to be performed”—in pursuit of specific goals and in response to specific practical problems—and not at all as constituting scientific knowledge of objective “concrete existences” and their laws and interconnections. Scientific laws are only “supposed to govern phenomena”: in reality they are nothing but “a way of transacting business effectively.” Again and again, just like the other positivists with whose views of science he seeks to contrast his own, Dewey insists that science does not yield knowledge of the objective world “which has being prior to and independent of the operations of knowing.”

This is shown, for example, in those passages—vague and confusing as they are—in which he speaks about *causality* and *causal laws*.

The “category of causality,” he says, is “not an arbitrary logical postulate.” It is not “arbitrary,” because it has been developed, and is needed, for definite practical purposes.

But “the category is logical not ontological.” “The category of causation accrues to existential subject-matter as a logical form when and because determinate problems about such subject-matter are present.”<sup>1</sup> That is to say, it is *we* who introduce the “logical category” of causality into “existential subject-matter” for our own purposes. We introduce it; we do not discover it in the “existential subject-matter” itself. For nature does not “intrinsically” conform to causal laws. To wonder why it conforms to laws is like wondering why there are rivers where there are cities: we find cities on rivers because we build them there, and similarly we find the results of our scientific inquiries expressed in terms of causal laws because that is the way in which we express the results of our inquiries. Causal laws “are inherently conceptual in character.”<sup>2</sup>

In general, Dewey’s conception of science is that there is business to be transacted, and a scientific enterprise is undertaken to find out how best to transact it. Dewey persistently treats the development of science as if it consisted in a series of researches, each in response to the stimulus of a particular

<sup>1</sup> *Logic*, p. 459.

<sup>2</sup> *Quest for Certainty*, pp. 198–201.

practical problem and leading to practical results in the way of a solution to that problem.

Yet, while it is true that the whole development of science is conditioned by problems of practice, it is not true that science has developed, or can develop, simply by way of a series of solutions of particular practical problems. Science is a development of knowledge of the interconnections and laws of motion of external reality. The enterprise of science is not simply an enterprise of finding how to "transact business effectively" in relation to a series of situations which call for a businesslike response, but an enterprise of extending and unifying our knowledge of the world about us.

The limitations of Dewey's conception of science are vividly shown by contrasting this conception with the conception of science developed by dialectical materialism, which guides the planned development of science in the Soviet Union. Thus, for example, in connection with the Five-Year Plan (1946-50) of the Academy of Sciences of the U.S.S.R., S. I. Vavilov wrote:

"Science, which arises out of the requirements of practice, and which justifies its existence by submitting findings that can be applied in practice, has at the same time its own logic of development. Sometimes scores of years may pass before a proper estimate can be made of a given scientific theory and before its practical applications are realised. Maxwell's theory of electro-magnetic waves was formulated in the 60's of last century, but radio did not come into existence until the end of the century. The idea of the atomic nucleus was advanced by Newton. Atomic fission was discovered by Becquerel fifty years ago, but it is only today that we have come to realise to the full the significance of atomic energy.

"This explains why our plan is determined by the requirements of the theoretical advance of science as well as by the problems presented to us by the Soviet State. The Academy's work is not divorced from practice and has its roots in practice; but at the same time it aspires to results far beyond present-day practice."<sup>1</sup>

Dewey's conception of science, on the other hand, is simply

<sup>1</sup> *Soviet News*, No. 1542, Sept. 26, 1946.



that there is business to be transacted, and a scientific enterprise is undertaken to show how to transact it. As a result of scientific operation, he says, "fruits remain, and these fruits are the abiding advance of knowledge."<sup>1</sup>

Science is an enterprise undertaken to do definite jobs, to achieve definite results, to attain definite "fruits." Its "abiding advance" consists in a series of successful business transactions. The abiding advance of knowledge is the successful transaction of business.

The source of this peculiarly limited conception of science is not far to seek.

Dewey's conception of science reflects the actual situation of scientific research in the United States, where it is largely conducted in research institutes (including the universities) controlled by powerful industrial corporations, and more recently by the military authorities, which impose definite tasks to be undertaken, definite results to be achieved. The most perfect example of this form of scientific enterprise to date is the atomic bomb project. But more and more all science in the U.S.A., and in Britain, too, tends to be cast into this mould.

The monopolies which, either directly or through the State, finance and control the greater part of science are not interested in more profound and comprehensive knowledge of nature which will serve mankind in mastering nature and enriching the whole of human life. They are interested in what they can get out of science—in the form of their own maximum profits; of bigger bombs, more deadly poison gases or more virulent bacteria, with which to extend and defend their own empire; and of maximum profits out of making and using such things. Hence the overall result for science of its subjugation to these interests is its perversion and militarisation, the disruption of useful research, security and secrecy, the regimentation of scientists and the destruction of their freedom of thought and action.

It is this form of organisation of science that is reflected in Dewey's view that science is a practical art, whose "fruits" are not knowledge of objective reality but the discovery of successful ways of transacting business.

<sup>1</sup> *Quest for Certainty*, p. 184.

# 7. AN "IDEALISM OF ACTION"—PHILOSOPHY OF AMERICAN IMPERIALISM

Dewey calls pragmatism "an idealism of action." It leads, he says, to "an idealism of action that is devoted to creation of a future, instead of to staking itself upon propositions about the past." Such an idealism, he adds, "is invincible."<sup>1</sup>

He also informs us that: "A genuine idealism and one compatible with science will emerge as soon as philosophy accepts the teaching of science that ideas are statements not of what is or has been but of acts to be performed. For then mankind will learn that . . . ideas are worthless except as they pass into actions which rearrange and reconstruct in some way, be it little or large, the world in which we live."<sup>2</sup>

Thus Dewey announces that pragmatism is an "idealism of action," which considers itself "invincible," and which proceeds to "rearrange and reconstruct" the world, and to "create a future," without seeking any accurate knowledge of "what is or has been" and refusing "to stake itself upon propositions about the past."

Certain prominent features of this "idealism of action" may at once be noted.

(a) It is characterised by the central point of view, expressed by William James, that the "worth" of every idea is to be judged by the "payments" it brings.

In his *Pragmatism*, James complained of critics who had misrepresented the pragmatists' principle that "the true is that which works" as meaning "that we are persons who think that by saying whatever you find it pleasant to say and calling it truth you fulfil every pragmatistic requirement." And he indignantly exclaimed: "I leave it to you to judge whether this be not an impudent slander."<sup>3</sup>

Of course it was a slander. James and the pragmatists never suggested that whatever one finds it pleasant to believe may be regarded as true. They said that whatever it *pays* to believe may be regarded as true. It is definite and tangible results that count, and results that have a "cash value." Thus the

<sup>1</sup> *Quest for Certainty*, p. 289.

<sup>2</sup> *Ibid.*, p. 133.

<sup>3</sup> W. James: *Pragmatism*, p. 233.

pragmatic "idealism of action" inculcates what James called "our general obligation to do what pays."

(b) In affirming this obligation, pragmatism betrays no awareness that what pays one set of people may not pay another. For example, following his "general obligation to do what pays" a capitalist may install some new machinery, with the result that a number of workers find themselves unemployed. This pays the capitalist, but it does not pay the workers. In fact, all that they secure from the transaction is a loss of payments.

Again, if we are to judge the "worth" of ideas by the way they "pass into actions which rearrange and reconstruct the world," then people with different interests—such as capitalists and workers—must often judge of their worth differently. For even on a question of reconstructing the world in a "little" way, class interests in fact diverge; and still more do they diverge on questions of reconstructing the world in a "large" way.

But this consideration never seems to occur to the pragmatists. Pragmatist philosophy always speaks from a point of view in which it is assumed that there is agreement as to what does or does not pay. When it says that "the true is that which works," it assumes agreement as to "that which works."

(c) In saying that every idea is to be regarded as a means or instrumentality for securing payments, and is to be judged by how well it works for such ends, pragmatism is extremely optimistic of the prospects for securing payments, and an indefinite continuation of payments, so long as one goes the right way about it. In this respect it stands in marked contrast to all those types of philosophy which preach the vanity of human efforts, or which represent man as facing a cosmos whose forces he cannot hope to master.

But this optimism is of a curious and irrational kind. On the one hand it is characterised by confidence that "we" can rearrange and reconstruct the world in whatever way suits "our" particular interests, and so can go on securing the kind of payments in which "we" are interested. On the other hand it is characterised by an equal assurance that to achieve this it is not necessary to trouble overmuch about "what is or has been."

Thus this optimism is not based on any sober consideration of objective fact or study of the laws of historical development. It regards the objective world as something quite "indeterminate"—so much raw material waiting to be turned into cash values.

Do not stake yourself upon propositions about the past, for the past does not exist. Never mind about what is or has been. Go all out for future payments, create for yourself the conditions to secure them, and then you will be invincible. That is the message of this "idealism of action."

Such a philosophy was from the beginning peculiarly American. It was born at that period in the history of the United States which followed the victory of the North over the South in the Civil War. It arose at a late stage of the development of the capitalist mode of production, when technique was already highly developed, and when the transition to the monopoly stage was already being prepared. It well expressed the aspirations—the "idealism of action"—of the American capitalist class of that period, the eager search for maximum profits, for ousting competitors, for opening out virgin territories, for continually revolutionising production technique, for overtaking and surpassing the "old world." It expressed the spirit of individual enterprise and initiative. It expressed also the clamant optimism of a period when every citizen (except, of course, black ones) was supposed to be free and equal, and to have an equal opportunity for success and to set up and own his own business.

It was these conditions that brought it about that pragmatists could speak about "payments" and about "ideas that work" without any difficulty being felt by them or their audiences as to what was meant. A millionaire and a worker were both supposed to have the same conception of what constituted successful practice, i.e., the millionaire's conception. And if the worker's son went to a university, it was hoped that he would learn there the same ideas which helped the millionaire to be successful.

Pragmatism taught that ideas of that sort were the "true" ones, and all others were worthless. More, it taught that nothing else could be meant by "truth" than the quality of leading to success. To mean anything else was to be

unpractical, to adopt a contemplative philosophy instead of a practical one.

Thus William James, in his lectures on *Pragmatism*, poured scorn on the whole idea that truth consisted in correspondence with fact—that true ideas in some sense “copied” facts.

“I can indeed imagine what the copying might mean,” he said, “but I can conjure up no motive.” What difference does it make to “copy” reality? he asked; and answered, none at all. “When the Irishman’s admirers ran him along to the place of banquet in a sedan chair with no bottom, he said, ‘Faith, if it wasn’t for the honour of the thing, I might as well have come on foot!’” So, “but for the honour of the thing,” reality might just as well remain uncopied.<sup>1</sup>

What was wanted was not to “copy” reality in ideas, not to look for any objective standard by which we should judge the truth of our ideas, but to assert whatever would best serve our practical ends. Ideas are to be judged in terms of their practical success.

The pragmatist philosophy played an important role in American education. Dewey is as famous for his books on educational theory as for his books on philosophy. He insisted that education begins from birth, and that its purpose is to equip the individual for his practical life as a citizen. This practical side is the important thing, not to fill the youthful mind with “dead knowledge.” Another pragmatist, Oliver Wendell Holmes, applied pragmatism in law, proclaiming that law could not be founded on any principles of right but was to be framed entirely for purposes of practical social expediency. In history, the pragmatist John Fiske said that the supreme object of history must be to proclaim “the manifest destiny of the Anglo-Saxon Race.”<sup>2</sup>

The cultural significance of the pragmatist idea of “success” was quite eloquently expressed by Professor Ralph Barton Perry, of Harvard University, in a contribution on *Is There a North American Philosophy?* at the Second Inter-American Congress of Philosophy (December, 1947). Some European readers may think the professor was trying to be funny; but no, he was perfectly serious. He defined the conception

<sup>1</sup> W. James: *Pragmatism*, p. 235.

<sup>2</sup> See H. K. Wells: *Pragmatism, Philosophy of Imperialism*.

of "success" and defended it from the charge of being "materialistic."

"It is a mistake to suppose that the American idea of success is limited to material success. That which is characteristically American is not the exclusion of art, literature, science and religion by the pursuit of wealth, but the *introduction into* art, literature, science and religion of something of the same spirit and attitude of which the pursuit of wealth affords the most notable or notorious manifestation: not the drowning of culture by the hum of industry, but the idea of making culture hum. And so material success, yes, but any kind of success, with no prejudice whatever against cultural attainment provided it can be recognised and measured as success. The standard is not essentially sordid or commercial, but it is essentially competitive, whether that consists in beating records or in beating other competitors."<sup>1</sup>

The pragmatist "idealism of action," this philosophy of success, had and continues to have the strongest appeal in the United States. It has never had the same appeal in Europe. Almost without exception the European bourgeois philosophers, whether "rationalist" or "empiricist," have found it hard to understand, unconvincing, and even shocking.

Russell, for instance, in his *History of Western Philosophy*, finds it decidedly shocking. Its general attitude to the universe he describes as "cosmic impiety." He calls it "a power philosophy" associated with "the age of industrialism," and even says that it expresses "an intoxication of power." "It is natural," he adds, "that its strongest appeal should be to Americans."<sup>2</sup>

Lord Russell is ready enough nowadays to accept American "world leadership." But, like other members of the British ruling class, he often feels that the Americans go too far and too fast. Their "power philosophy" disturbs him. Its practical results seem dangerous, while its theory hurts his intellectual susceptibilities; he is unwilling to give up the joys of "contemplation."

In England the successful capitalists had tended to imitate

<sup>1</sup> *Philosophy and Phenomenological Research*, Vol. IX, No. 3, March, 1949, p. 358.

<sup>2</sup> Russell: *History of Western Philosophy*, pp. 854-6.

the way of life of the landed gentry. As Engels once put it, there was "a compromise between the rising middle-class and the ex-feudal landowners. . . . What should the English bourgeois do without his aristocracy, which taught him manners, such as they were, and invented fashions for him—which furnished officers for the army which kept order at home, and the navy which conquered colonial possessions and new markets abroad?"<sup>1</sup> Hence the persistent demand, still expressed at a high level in the universities, and expressed in the writings of Lord Russell and of a host of less exalted philosophers, for a philosophy adapted to the outlook of a leisure class. In England, and the same was true in other European countries, capitalist culture intermarried with the culture of the landed gentry. But in the United States there was no such marriage. There, the ideal was not leisured contemplation of the good, true and beautiful, but to "make culture hum." The American universities were financed by businessmen, run by businessmen and were intended to produce successful businessmen. Hence the origin of a truly business-like philosophy—pragmatism. This philosophy is practical, optimistic, ready for rapid change; and its sole standard of values is that which works—which pays.

Pragmatism was, then, the intellectual product of the newest capitalist country, the U.S.A., and of the specific and new conditions of development of capitalist enterprise which obtained there.

It is just this, indeed, which gives it the advanced and go-ahead air which it assumes in comparison with most European bourgeois philosophy. Of all the philosophies of capitalist society, it is the most purely capitalist. More than any other brand of bourgeois or capitalist philosophy, it has emancipated itself from the scholasticism and mysticism dating from pre-capitalist conditions. And with that, it has emancipated itself too from every remaining scruple regarding the search for truth and fidelity to principles. It expresses a single-minded devotion to securing profits and payments, to scoring over competitors, to making good, to opening up new fields for business enterprise, to subordinating absolutely everything to that enterprise.

<sup>1</sup> Engels: *Socialism, Utopian and Scientific*, Introduction.

It is a philosophy of action completely brutal, cynical and ruthless in its expression of capitalist individualism. And at the same time, as Dewey boasts, it is an "idealism of action." It succeeds in *idealising* as no other philosophy has done the capitalist scramble and fight for profits and competitive advantage under cover of high-sounding doctrines about knowledge and truth and human welfare.

It denounces "materialism," treats religion and morality with the greatest respect—and at the same time succeeds in combining this with a "naturalistic" view of human affairs by which it stakes its claim to be fully scientific, down to earth, free of illusions and idealistic fancies.

If once one grasps the capitalist nature of pragmatist philosophy, and concretely that it is the "idealism of action" of American capitalism, then all its seeming confusions and inconsistencies fall into place. As a logical system it altogether lacks consistency, as a class ideology it is strikingly consistent.

The entire pragmatist theory of knowledge and truth is idealist, and its "naturalism" is nothing but a camouflage of subjective idealism. Its demand that theory shall serve the ends of practice, disguised as it often is by phrases about general "human welfare"—for the pragmatists are convinced that successful business enterprise is synonymous with human progress—amounts to the demand that theory shall serve the ends of capitalist practice, of business enterprise.

It is a subtle form of idealism in which was expressed the outlook and aspirations of the American capitalist class, their "idealism of action." And at the same time it is a system of social demagoguery and deception. For the whole tendency of the spread and popularisation of pragmatist philosophy has been to help instil this same capitalist outlook in the minds of the American people. It has glorified the ways of capitalism before the people, taught those who suffer exploitation to identify their own interests with those of their exploiters and to entertain illusory hopes for their own future within the framework of the capitalist social system.

The founders of the pragmatist philosophy in the last quarter of the 19th century looked both backwards and forwards. Looking backwards, they could not but feel that the old type of theology and religious philosophy which was then being



widely taught in the United States was played out. They were right. For it was not adapted to serve the new conditions of rapid capitalist industrial development, either as a system of ideas satisfying to the capitalist forces themselves or as an ideological defence against the growing organised struggle of the working class. Hence the attack upon the traditional doctrines of idealism with which the pragmatists began their philosophical campaign. Looking forwards, they invented the doctrine that truth is that which works, that setting practical ends before themselves and seeking practical "fruits" and "payments," people are justified in asserting as true whatever serves those ends. Truth, principle, reason were all to be replaced by expediency.

It was in this way that while American capitalism was still moving into the monopoly stage, and while American imperialism was still in process of gestation, American philosophers produced those ideas which constituted the most perfect ideological preparation for the acceptance of imperialism, and which provided American imperialism itself with its philosophy.

The pragmatist philosophy perfectly expresses the world outlook and aspirations of those forces which have gathered to themselves and monopolised all the "fruits and payments" accruing from capitalist development—big business and the billionaire trusts.

Behind all Dewey's generalities about theory and practice, knowledge and truth, in which everything is subordinated to success measured by results and payments, lies the ruthless justification of the expansionist policy of big business, which is idealised as "the creation of the future" and "the reconstruction of the world in which we live."

Taken at its face value, as a philosophical statement, the pragmatist principle that "the true is that which works" is an extremely confused and inaccurate theory about truth—a theory that, philosophically speaking, works very badly. But this theory becomes the perfect expression of the regard for truth of all the agents and hangers-on of the big business world. It is the "philosophy" of the sales expert, of the party boss, of the imperialist politician. All of them are purveyors of ideas who are interested in getting certain results, and the sole

property of ideas which concerns them is the property of helping to get those results.

At the same time, the pragmatist philosophy has a characteristically deceptive, demagogic flavour. In John Dewey's writings, for instance, this demagoguery was carried to great lengths.

That is the real meaning of Dewey's extraordinary verbosity, of his way of covering up whatever he has to say with a curtain of vague, ambiguous and high-sounding phrases—a way of writing which became more pronounced with every new book he wrote in the course of his long career as a philosopher of imperialism. Dewey's philosophy was subjective idealism, but he managed to present it as “naturalistic.” Dewey's philosophy recognised no such thing as truth, but he managed to present it as a theory of truth.

Imperialism always has recourse to social demagoguery. The American imperialists have nothing to learn in this respect from their junior partners, the British, or from the German fascists and Japanese militarists they have now taken under their wing. American imperialism has its own brand of demagoguery, of which the pragmatist philosophy serves as one of the expressions. It calls big business monopolies “free enterprise” and their unrestricted rule “democracy.” It seeks to extend its domination over other peoples under cover of opposing antiquated conceptions of nationalism and national sovereignty, and to trample on human rights in the name of the defence of individual freedom. Dewey and the pragmatists are past masters of such demagoguery in the sphere of philosophy.

Lastly, the significance of the pragmatist teachings about the existence of the objective world, and of the peculiar tone of optimism pervading the pragmatist philosophy needs to be appreciated.

The pragmatist “idealism of action” says that “ideas are statements, not of what is or has been, but of acts to be performed.” It is “devoted to the creation of a future, instead of staking itself upon propositions about the past.” This is the same attitude as was expressed more crudely by Henry Ford, when he said that “history is bunk.” He was optimistic about the “invincibility” of Ford Motors, and that such an enterprise would not suffer the fate of various other enterprises of

the past. Nevertheless Henry Ford was wrong, and so are the pragmatists.

Objective facts and the laws of history are inexorable. Capitalist "progress" inevitably leads to crises, poverty, wars and the destruction of the very means of production which capitalist enterprise creates. The system of business enterprise creates the conditions for its own decline and fall, and has already created them.

But such being the objective fact, pragmatism, as the philosophy of business enterprise, teaches that there is no objective fact, that the objective world is something indeterminate awaiting determination by enterprising practical men, and that we can go ahead to create a future without concern for the past.

This is a naïve and illusory optimism. But it has come to constitute a perfect expression of the expansionist strivings of American big business. It expresses the blind determination to "create a future" and to stamp the pattern of that future upon any recalcitrant objective facts which get in the way. At the same time, it prepares men's minds to accept and applaud the ways of American imperialism as an "idealism of action," and to believe that such "idealism of action" is "invincible."

Pragmatism, then, particularly in the form which Dewey has given it, is the philosophy of American imperialism. It expresses the outlook and aspirations of American big business in philosophical form. That is its basis, the real content of all its doctrines.

From this source it derives its go-ahead appearance and its opposition to various "contemplative" forms of idealism, unsuited to the practical pursuit of maximum profits. But it is impossible not to see that it is itself a form of idealism, and that its real attack is spearheaded, not against idealism, but against materialism, and against Marxist materialism in particular. The pragmatists are least of all "ivory tower" philosophers, but militant partisans of the camp of imperialism against the camp of socialism. That is the meaning of their opposition to the "contemplative" forms of idealism.

And expressing the militant, class point of view of the most reactionary and aggressive section of monopoly capitalism, the American imperialists, pragmatism is at the same time a system

of demagoguery and deception addressed to the American people, seeking to mould their outlook to the outlook of imperialism, to delude them with false slogans about free enterprise and democracy, about creating a future and reconstructing the world, while inciting them against whatever is anti-imperialist and progressive.

## CHAPTER 19

### FEATURES OF A REACTIONARY PHILOSOPHY

#### 1. HAS POSITIVISM CONTRIBUTED ANYTHING TO THE HERITAGE OF PROGRESSIVE THOUGHT?

THERE are some—friends of Marxist materialism—who say that the kind of estimate made of the value of contemporary positivist philosophy in the foregoing pages is a good deal too negative. They want to insist on due credit being given to the positive features which, according to them, are embodied in this philosophy. For they think that, despite its idealist and metaphysical character, positivism has nevertheless made a powerful contribution to progressive thought and has contributed ideas which must always belong to the heritage of progressive thought.

I do not agree with these friends of Marxist materialism. That they are friends, I do not deny. But there are friends who give good advice and friends who give bad advice.

What are the positive, progressive feature of positivist philosophy supposed to be? Those who raise this question seem to have four main points in mind.

The first is that a very important contribution has been made to the science of formal logic and, arising from this, to the study of the foundations of mathematics; for modern developments of mathematics have been very intimately connected with the development of the technique of symbolic logic.

The second is that positivism has rendered great service to the development of philosophy by calling attention to the importance of a study of language and by opening up the systematic study of semantics, i.e., of the meaning function of language and of the linguistic aspects of science.

The third is that pragmatism has made an important contribution to philosophy by stressing the connection between theory and practice.

The fourth is that the positivist schools have fought for clear thinking and a scientific approach to problems by their

insistence on the need for empirical definitions of terms and for an empirical and pragmatic test of all ideas.

Now as regards these points the following may immediately be stated.

It is undoubtedly the case that modern symbolic logic *has* made certain technical advances in comparison with traditional Aristotelian and scholastic formal logic; that we *do* need to study language as the vehicle and instrument of thinking; that we *do* need to stress the connection between theory and practice; and that we *do* need to develop a logical technique of clear statement, ensuring that what we say can be tested in experience and practice and refers to things whose existence can be verified.

But what it is most important to say is that progress in each of these respects demands a decisive break with the whole approach and methodology of positivism. This approach and methodology cannot claim the credit for contributing anything new and positive to philosophy in these respects. The positive contributions and services claimed for it are non-existent. What it has contributed consists of new idealist confusions and metaphysical schemes, and its services consist in the placing of stumbling blocks and philosophical booby traps. This can be demonstrated in relation to each of the four claims which have been made for positivism.

So far as formal logic and the foundations of mathematics are concerned, the advances which have been made in modern times in mathematical logic have their basis in the development of the physical sciences and of mathematics itself, and in the need for creating more adequate and exact symbolic tools for expressing and dealing with the space forms and quantity relations of the real world.<sup>1</sup>

These advances were not the handiwork of positivist philosophy but were rather made in spite of that philosophy than because of it. The contribution of positivism to the philosophy of mathematics has simply been to entangle it in a maze of metaphysics and to obscure and sever the connections of mathematics and mathematical logic with the material world. As Engels put it—and though he wrote this before the more recent developments of mathematical philosophy, what he wrote applies to them exactly: “The laws

<sup>1</sup> Engels: *Anti-Duhring*, Part I, ch. 3.

abstracted from the real world become divorced from the real world and are set over against it as something independent."<sup>1</sup> This has led to the speculations of the formalists, who have represented both logic and mathematics as mere formal systems.

As for the critical study of language, the connecting of theory with practice and the demand for clear thinking and a scientific approach to problems—it was not the positivists who introduced these things into philosophy. They are all part of the heritage of materialism.

In philosophising about language, the positivists have proceeded on the barren assumption that philosophy consists of nothing else than the "analysis of language." They have treated language in false abstraction, attempting to work out from first principles the system of its semantic and syntactical rules, regardless of its real function as social means of communication and expression of thoughts. They have separated language from thought, and thought from the real world of nature and society. Consequently, they fail to study language scientifically, that is, to study how it really develops and functions. Their sole contribution has been to work out idealist and metaphysical views about language. The "analysis of language" is presented as a method of criticism and of clarification. But, on the contrary, by reducing philosophy to "analysis of language," the positivists have found an effective method of avoiding the critical comparison of thought with the real processes in the world outside us, and of developing and clarifying ideas about the real world and the problems of human life in it.

When pragmatism claims to link theory with practice, it does so only in order to make out that ideas are nothing but "instrumentalities" and that truth is simply that which "works" or "pays." In fact it knows nothing of the real unity of theory and practice, because it denies the objectivity of the world in which practice operates and which theory reflects. Denying that theory must approximate to the objective material world, the arena of human action, the pragmatists deny to theory any rational and scientific basis, and reduce it to nothing but such "rules for action" as are

<sup>1</sup> Engels: *Anti-Duhring*, Part I, ch. 3.

provisionally found expedient. And similarly, denying that practice can be guided by rational and scientific principles, they advocate practice based on pure expediency.

Lastly, in the absence of any adequate account either of language or of thought and knowledge, based on the study of their real existence and development, the demand for clarity and for a scientific approach to problems in all these positivist philosophies finds actual expression in a mass of pseudo-scientific and scholastic terms and phrases.

The upshot of the contemporary "logical" and "scientific" philosophy has been to produce a new scholasticism, as barren and as anti-scientific as the disputes of the schoolmen in the Middle Ages.

The essence of scholasticism was to dispute about certain questions according to certain rules; and neither the questions nor the rules had any bearing upon the advancement of our knowledge of nature and mankind. The same characterisation holds good of the disputes of the logical philosophers today regarding the method of "analysis," and the terms which "analysis" should employ. Endless disputes and discussions are engendered over theories which never had any scientific foundation.

The "elements," "aspects," "events," "objects," "atomic facts," "sense data," "sensory fields," "experience," "worlds"; the "elementary propositions," "protocols" and "rules"; the "logico-analytic method," "principle of verification," "logical syntax," "methodical materialism," "physicalism," "principle of tolerance"; the "protocol language," "scientific languages," "symbolic languages," "physicalistic language," "syntactical rules," "rules of designation," "reduction basis of the language of science"—all these new philosophical terms and phrases, concerning the meaning and relative merits of which so much discussion has taken place over a period of forty years—they are all so much scholastic make-believe, which bears no relationship to the real world, and to the real problems of life and knowledge. And in their essence they are all one, because their essence is to confuse and deny the objective content of scientific knowledge, by means of some ingenious analysis based on the a-priori principles of a system of pure logic.



It is not by appreciating and accepting the "achievements" and "contributions" of logical positivism and pragmatism that progress will be made in logic, linguistics, the theory of knowledge or the philosophy of science, but only by sharply criticising and rejecting these "achievements" and "contributions."

## 2. IMPERIALIST PHILOSOPHY

### *Positivists in the Struggle Against Materialism*

One feature of contemporary positivism is that it spreads the illusion that there is a "middle road" in philosophy—to fight against materialism while at the same time criticising idealism. This it believes is the road of scientific impartiality and objectivity in philosophy.

American pragmatism started off with a polemic against the "absolute" idealism current at the close of the 19th century, and so did the movement of logical analysis in Britain. Indeed, one of G. E. Moore's best known articles was called "The Refutation of Idealism," and in his earlier writings Russell was continually tilting against "Hegelianism."

Amongst the British positivists a favourite target of attack was the idealist school associated with T. E. Green, F. H. Bradley and Bernard Bosanquet. These philosophers all considered that the task of philosophy was to reveal the nature of what they called "the Absolute"—the ultimate reality, which depended on nothing else for its existence and was one and indivisible. They all agreed that the "Absolute" was in some sense spiritual. The spiritual Absolute alone was real, they claimed, while the material world was "unreal," a "mere" appearance. Material things had no existence apart from the Absolute Spirit; and the whole of our experience and activity, in which we seem to be living an independent life in a material world, was but a fragment of the total spiritual being of the Absolute.

The positivists maintained that this "absolute" idealist philosophy was entirely baseless, a mass of confusion propped up by fallacious arguments. They rejected the entire philosophical programme of trying to deduce the nature of the Absolute. They rejected the whole idea that "ultimate reality" was one and indivisible, and maintained that there

was no such thing as "ultimate" reality but only numerous real objects. And in opposition to the idea that we ourselves are "unreal" and live in an "unreal" world, they maintained that philosophy should undertake a careful analytic investigation of the real properties and relations of things discoverable in experience. For this reason, the positivist critics of "absolute" idealism represented themselves as "realists," contrasting "realism" to idealism.

But having "refuted" idealism, the positivist critics proceeded to reinstate it in another form. The method of analysis adopted by Moore, Russell and their school, and equally the pragmatic method adopted in America, was on the one hand a method of debunking propositions about the "Absolute." On the other hand, it was a method of re-interpreting all propositions about the material world in terms of subjective experience. Thus criticising "absolute" idealism, it also ruled out materialism, and rejected the real material world as scornfully as it rejected the imaginary spiritual Absolute. Positivists and pragmatists alike thought they had left behind them the whole philosophical controversy between materialism and idealism. They thought that both materialism and idealism were disposed of by the pragmatic or analytic methods. But in fact they had only attacked one particular brand of idealism and, under cover of this attack, had adopted with new phraseology another brand of idealism, namely, subjective idealism.

The positivists were no doubt right in saying that the systems of absolute idealism were so much muddled make-believe. But yet their criticism was a subjective idealist and formalistic criticism. They did not criticise the conception of the Absolute because it was an idealist conception. They criticised it because it refused to allow that the elements of subjective experience were absolute. They did not criticise the conception of the unreality of the material world because it denied the existence of the material world. They criticised it because it refused to allow that knowledge should stop short at the superficial appearances and external relations of things given in perception. In other words, far from criticising the idealism of absolute idealism they criticised those elements in it which had some kinship with materialism. Criticising what

Russell called "the classical philosophy," they directed their attack against just those elements in it which could lead forward from idealism to scientific or dialectical materialism. Turning from the progressive path, they retired into the ancient swamp of subjective idealism.

Positivism has played an important part in the ideological struggle of idealism against materialism in modern times. The systems of absolute idealism which were current in the latter part of the 19th and beginning of the 20th centuries, pale ghosts of the once virile Hegelian system, had become in fact poor soldiers in the war against materialism. They had little appeal to intellectuals impressed by the advances of science and technology, and their influence over the outlook of the masses had always been very slight. The positivist philosophy, with its specious appeal to science and demand for clarity and impartial, analytic investigation, was a far more effective force. It combated materialism in the name of science and clear thinking, under the flag of "the refutation of idealism" and the rejection of metaphysics and dogmatism.

Far from superceding, as was its intention, the basic philosophical controversy between idealism and materialism, positivism was in fact a strong partisan of idealism. It propagated idealism under the guise of being neither idealist nor materialist, while under cover of what purported to be a clear-headed, critical, pragmatic attitude, it sought to prevent materialist conclusions being drawn about nature and society. It reverted to the standpoint of subjective idealism, but developed this standpoint in a new style, with new formulations. This new style idealism, this idealism up-to-date, was idealism adapted to the new conditions and requirements of the stage into which capitalist society had entered, the stage of imperialism.

### *The Positivist World Outlook*

The whole contemporary positivist philosophy arose and developed in the epoch of monopoly capitalism, or imperialism. It is the most widespread and influential philosophy of that epoch. What is the connection between the positivist ideas and the social-economic conditions of monopoly capitalism?

On the face of things, the connection is far from obvious.

Why should the replacement of capitalist free competition by monopoly, the merging of bank and industrial capital, the export of capital and the division of the world amongst imperialist powers cause philosophers to undertake the logical analysis of language? How is such an economic structure reflected in philosophical theories about the mode of verification of propositions? These are the sorts of questions positivists may well ask, when they are told by Marxists that their philosophy is a product of monopoly capitalism and serves to help maintain and protect the system which produced it.

The connection between an economic basis and the ideas which gain currency as a superstructure on that basis is seldom obvious or direct. As Marx and Engels showed long ago, the basic economic structure influences the development of philosophy through the intermediary of a whole complex of social and political conditions. The philosophers argue about, alter and adapt the previously existing ideas received from their predecessors in ways determined by those social and political conditions.

This applies to the development of the positivist philosophy on the basis of the economic structure of monopoly capitalism. The positivist philosophers reacted against certain ideas which they found in currency, and took over certain other ideas, especially the old ideas of subjective idealism which had originated in the 17th century. They reformulated the latter, used them in new ways, gave them a new look, under the influence of the social and political conditions of the monopoly epoch and meeting the demands placed on philosophy by the existence of those conditions. This did not happen because the philosophers had decided amongst themselves to express ideas appropriate to the given conditions. It did not happen because they decided to defend the existing economic system and system of class rule. It happened because they tacitly accepted the existing conditions, did not see beyond them, and so in their ideas could not but be subject to their influence and serve the system to which they corresponded.

If one looks for what lies behind all the analysis of language and argument about the meaning of words which positivist philosophy engages in; if one ignores the tricks of the trade and examines what is actually being sold in books of positivist

philosophy; then one discovers a general world view in positivist philosophy which is constant throughout all its many variations. This world view distinguishes it from most other and older brands of idealism, and determines its special way of fighting against materialism. And in this general world view is manifested the determining influence which the conditions and requirements of capitalism in its monopoly stage have exercised in shaping this philosophy.

The older idealism, which positivism attacked, considered that a progressive process of evolution was a fundamental feature of the world, and saw human life, society and history, as a directed process tending towards some end, informed by a purpose. It considered that human thought, human reason, was capable of penetrating to the inner truth of things and obtaining knowledge of the real world and its laws. And it considered that the world was an organic whole, in which the different parts were necessarily connected.

Positivism attacked it on all these points of its world view. The positivists accused the older idealists of entertaining an illusory world view, whereas positivism, disposing of such illusions, had no world view at all and considered such a thing out of date. Nevertheless to reject one world view is to adopt another, even if it is a largely negative one. The positivist world view is quite definite. It denies that there is a progressive evolution in the world or any direction or purpose in society and history. It denies that we can obtain knowledge of the essence of things and confines all possible knowledge to particular facts and correlations of facts. And it denies that necessary processes and necessary connections exist, seeing the world as simply a collection of atomic facts and events, in which all relations are external and everything happens by accident.

This world view of positivism is a product of the imperialist epoch, of the epoch of monopoly capitalism. The positivists may think that everything is accidental, but their own ideas prove the contrary. For these ideas are organically connected with the development of capitalism into monopoly capitalism. A philosophy which talks of a direction in human history, organic connections, knowledge and reason, though always edifying, is little suited to the requirements of imperialism.

William James, with characteristic forthrightness, called such a philosophy "tender minded," whereas what was required, according to him, was a "tough minded" philosophy.<sup>1</sup> Capitalist progress ceases with imperialism. Technical progress continues, but people no longer see it, as they did at an earlier stage, as leading eventually to human betterment; rather are they brought face to face with the fact that it leads to more severe crises and more devastating wars. Hence the idea of progress ceases to have any basis in capitalist reality. Those who want to see progress and a direction of development have to look beyond capitalism towards socialism. The old ideas of purpose, and of knowledge penetrating to the inner truth of things, which the older capitalist ideology made wide use of, cease to carry conviction in new conditions, unless one is prepared to work for the elimination of capitalism itself. The new "tough minded" school sees neither progress nor purpose in anything, confines knowledge to facts as they turn up, sees the world and life as a series of happenings without reason, which we must respond to and control as best we can in the light of experience and on lines of expediency. Such are the ideas born of imperialism, the last, moribund stage of capitalism. And these are the ideas expressed in the world view of positivist philosophy.

The very conditions of life of the intellectuals, those who do the official philosophising in capitalist society, urge and compel them on the track of such ideas, so long as they remain unwilling to revolt against the system. Intellectuals become for the most part salaried employees, compelled to become narrow specialists of one sort or another. They tend more and more to consider things piecemeal and not to seek a wider view of the hidden internal connections of things. They are concerned less and less with serving any grand purpose, but rather with performing particular functions and finding out how particular jobs are to be done, with no prospect of any noble end being served by so doing. All this makes them "tough minded," in James' sense. And they conceal from themselves the squalid limitations of their real position by a scornful attitude towards the former style of philosophising and a fervour for the minute analysis of particular problems.

<sup>1</sup> W. James, *Pragmatism*, ch. 1.

The epoch of imperialism is the last stage of capitalism. From monopoly and the division of the world among the great powers, capitalism can go no further. And with the first imperialist war, 1914-18, and the socialist revolution in Russia, capitalism entered upon its final state of general crisis, the phase of its prolonged death throes. The incidence of the general crisis (which has now been going on for forty years) confirmed and reinforced the world view of positivism—the denial of purpose and direction, the denial of rational knowledge, the denial of necessary order and connection in things. And so the tendency of philosophers to adopt such a negative world view was reinforced.

### *Positivists in the Struggle Against Socialism*

The epoch of imperialism is the epoch of the socialist revolution. This fact profoundly affects imperialist ideology, and, especially since the turning point of 1917, hatred and fear of socialism has been a major factor in shaping it. Imperialist ideology is fundamentally defensive, since the ideologists are preoccupied with warding off the danger of socialism and attacking it in all its manifestations. In this the positivist philosophy plays an important part.

What I have called the positivist world outlook can be further assessed from this angle. It is characterised by the denial of progressive direction in history, by the denial of knowledge and by the denial of necessity. But the victory of socialism demonstrates precisely the existence of a progressive direction in history, and it can only be won and consolidated with the aid of revolutionary theory expressing profound knowledge of objective necessity, on the basis of which people achieve the conscious, purposive direction of the historical process. The struggle for socialism and the victory of socialism demand recognition of precisely what is not recognised but is denied by the positivist world outlook. Dialectical materialism grasps in a scientific way, and verifies in revolutionary practice, the purposiveness, knowledge and necessity which the older idealism expressed in an obscurantist and reactionary way. But the positivist philosophy, unlike the older idealism, does not oppose to the materialist conception of purpose, knowledge and necessity an idealist conception, but denies purpose, knowledge

and necessity altogether. This is how, in the form of an attack on the older idealism, it really fights materialism. This has become the most effective way of fighting materialism and, by that fight, fighting against socialist ideas, attacking them at their very roots.

For the most part positivist philosophy has engaged in this battle under cover of an assumed neutrality. But after the Second World War, when two camps were formed in the world—the camp of socialism and peace, and the camp of imperialism and preparation for a third world war—some positivist philosophers abandoned any pretence of detachment from world politics and came out as open propagandists of the imperialist camp. An ideological crusade against communism was being whipped up, in fact not a crusade against communism but against the whole movement of peoples to win freedom and self-determination, to cast off the fetters of imperialism and frustrate the imperialist drive for world domination. And these philosophers placed themselves in the forefront.

The general lines of their attack were well mapped out in a two-volume work by K. R. Popper published at the end of the war, *The Open Society and its Enemies*. In this book the philosopher jumped in well ahead of the politicians demanding the break-up of war-time friendship with the Soviet Union. According to Popper, dialectical materialism is a system of philosophical dogmatism, the most dogmatic of all dogmatic systems. Believers in such dogmatism, he says, try to impose their own rigid ideas on the whole of society. They seek to introduce a “totalitarian” regime by violent revolution and then to maintain it by force. Against what he regards as the dogmas of doctrinaire Marxism he counterposes the “scientific” outlook of positivism, and against “totalitarian” communism the “individual freedom” of the “western democracies.” Regarding history as without direction, and society as moving and changing without objective laws, he counterposes to the materialist conception of the application of science to the guidance of human affairs what he calls “social engineering,” which means making small “experimental” reforms while preserving the basic structure of imperialism. He calls socialism a “closed” society and capitalism an “open”



society, and concludes that no sacrifice would be too great to keep society "open."

In this way contemporary positivism embraced the contemporary imperialist conception of the struggle to the death of "western democracy" versus "communist dictatorship."

The greatest zeal of all in this struggle has been shown by Bertrand Russell, though as the years have passed he has been forced to change his tune in certain respects. His pronouncements have been numerous, but a few quotations must suffice.

In 1948, writing in a periodical now happily defunct, he applied the method of logical analysis to the question of "the outlook for mankind."<sup>1</sup> There existed, he said, an irreconcilable conflict between two great powers, America and Russia. The only practical alternatives were "American world empire" or "Communist world empire." The prospect was war, in which "utter ruin will overtake the whole territory from Calais to Vladivostok." But the only hope for mankind was that the Americans would win this war, and the best thing to do was to prepare for it with all speed. What we could look forward to was that "a White Terror will replace the Red Terror" and "a single military government will be established over the whole world." But as a result of this, "mankind may enter upon a period of unexampled peace and prosperity."

It is evident that in this "analysis" the philosopher was simply reproducing the opinions and wishes of the most reactionary sections of British monopoly capitalism. Nevertheless, like the monopolists, he soon began to think again, in face of the mounting strength and success of the peace forces in the world. By 1954 he had reached the conclusion that even if America won a third world war, "Russia and China together are too vast to be held down by force for any length of time. . . . For such reasons, I do not think a great war ending in conquest by either side is likely to bring about any lasting improvement . . . we must look ultimately to agreement between East and West, and not merely to a supremacy of armed force."<sup>2</sup> This reconsideration of his former uncompromising standpoint is certainly to be welcomed. But yet it only confirms the fact that, in politics, his "analytic

<sup>1</sup> Russell: *The Outlook for Mankind, Horizon*, April, 1948.

<sup>2</sup> Russell: *Human Society in Ethics and Politics* (1954), p. 224.

method" is simply a method of serving up in scientific-philosophical dress whatever are the views of his masters from time to time. For it reflects the 1954 caution of British imperialism in relation to the drive for an early aggressive war against China and the Soviet Union.

As to future policies, imperialism has today no very clear or convincing answer to the problems it faces, nor has imperialist philosophy.

In his book, *The Impact of Science on Society*, Russell arrived at a conclusion about the conditions required to ensure a stable world order, which he repeated verbatim in his subsequent book on *Human Society*. They are, according to him, four in number. (1) There must be a world government "possessing a monopoly of armed force." (2) There must be "a general diffusion of prosperity," so that no section of people has occasion to envy any other. (3) There must be "a low birth rate." (4) There must be provision "for individual initiative" and every citizen must have as much say in government as is "compatible with maintaining the necessary political and economic framework." Here Russell has ended by summing up what may be called the day-dreams of imperialism—a monopoly of armed force dominating the whole world, and everyone is happy and contented; the lower classes and colonial peoples obligingly stop breeding, and they display initiative and responsibility in the service of the "necessary political and economic framework."

Russell's philosophical excursions into world politics illustrate not only that his philosophy is an echo of the policies and views of the monopoly capitalists, but also the complete bankruptcy of those policies and views.

### *Positivist Method as a Method of Deception*

Now the practical point of positivism's analytic or "logical" method begins to appear. The positivists for the most part employ this method as a purely theoretical instrument and, with some of them, it is carried on as a kind of intellectual parlour game—the game of analysing propositions and inventing systems of the logic of language. Most of them are unaware that their method serves any practical social purpose whatever.

But yet it is by means of this very method that they abolish any materialist understanding of the world.

The positivist method was devised by an adaptation of the theories put forward at an earlier stage of capitalist development, by Berkeley and others, to forestall materialist conclusions being drawn from the advance of the sciences. In the stage of the final crisis of capitalism, in the epoch of monopoly capitalism, these earlier ideas have been developed in new and ingenious ways—whether by the analysis of propositions, by the discussion of the logic of language and its semantic rules, or by the pragmatic reduction of ideas to “instrumentalities”—to make a frontal attack on the materialist understanding of the real motion and interconnection in the world and the struggle to change the world in the light of that understanding, and in place of it to put forward the conception of no direction, no necessity and no knowledge.

The whole result of the method is to discredit and forestall materialist understanding and socialist conclusions. The tendency of the method is to replace such understanding and such conclusions by ever more abstract discussions about meanings and formal rules for using words. As the general crisis of capitalism has got worse, so has this abstractness of philosophical discussion got worse too. In the name of scientific discussion it heads off the scientific discussion of real problems.

The causal order of dependence in social development is in this case, as in ideological development in general, the opposite of the logical order of the philosophical exposition of ideas. In logical order, the anti-materialist conclusions of positivism follow from its method. Hence anyone who considers merely the products of men's brains and not the social processes by which such products came to be produced and to be arranged in a logical order, will think that the anti-materialist conclusions are put forward because the method was adopted. To such a one, ideas appear to be products of pure thought and not of any social process going on independent of thought. But in the order of dependence in social development, as opposed to the order of dependence in abstract thought, the method was adopted because it was a method to produce anti-materialist conclusions.

The examination of positivist philosophy as a social trend, as an ideology, shows, then, that there does exist a very real connection between the coming into being of monopoly capitalism and the positivist method of philosophical analysis. It was in fact precisely the advent of monopoly capitalism and the peculiar conditions arising from it which set the philosophers off on this method. And by using this method they have rendered good service in the ideological struggle to preserve capitalism and to ward off socialism.

### *Contradictions in Imperialist Philosophy*

Positivism is a trend of imperialist ideology. But it is not the only trend. And the examination of its special features and the specific role it plays in the service of imperialism must include the examination of its contradiction to other trends and the practical conclusions which follow from this contradiction.

Although it is a product of monopoly capitalism, positivism does not present itself as a philosophy which is primarily concerned with upholding either established institutions or traditionally accepted ideas. On the contrary, much of the positivist philosophising assumes an "advanced" or "critical" tone.

In Britain, for example, Bertrand Russell has made repeated attacks on Bishops and Conservative politicians, whom he has accused of being narrow-minded. In the First World War he was a pacifist, and not only lost his job at Cambridge University but suffered imprisonment for his opposition to the slaughter. He supported the Indian National Congress. Like many other left liberals, he welcomed the Russian Revolution in 1917, though he turned against it later. Then he turned his attention to marriage and "free love"; for this he was subsequently forbidden to teach in any American university, since the American pragmatists refused to combine theory with practice in this matter.

As for the pragmatists, their critical attitude was expressed in the demand that everything must be submitted to the pragmatic test. Nothing was sacred and nothing, from the idea of God to the institutions of society, was to be valued or preserved except in so far as it "worked."

In general, positivist philosophy, in its social tendency, is

associated with criticism of traditional ideas, institutions, habits and policies, rather than with their conservation. This advanced and critical tendency remains, however, like the whole general world outlook of positivism, rooted in the conditions of imperialism and is a product of those conditions. Indeed, imperialism engenders and needs advanced and critical ideas no less than conservative and dogmatic ones. One can have no understanding of imperialist ideology as a whole unless one grasps the fact that such advanced and critical thinking is a part of it.

It is, indeed, a feature of imperialism that a big part is played both in framing its ideas and carrying out its policies by people who start off from a position of criticising accepted ideas and institutions and demanding various social reforms. But because they do not question and in fact accept the dominance of the capitalist monopolies, they at the same time persuade themselves that imperialist colonial policy is the spreading of civilisation and progress, and that the increasing power of the monopolies and the subjection of the state and of everything else to their influence represents a new and more rational social order. Imperialism has recruited some of its ablest servants from amongst those who think in this way, and they have contributed much to the current of imperialist ideology. Such advanced ideas are always being opposed by contrary conservative ideas, and are always kept going by opposing conservatism. But they are far from obnoxious to the ruling monopolies. Imperialism would never have kept its hold and managed to carry out its anti-popular policies without them.

How does this come about? It comes about because the maintenance of the system of imperialism entails not only suppressing people and holding them down but also conciliating them and gaining their support. Hence one part of imperialist ideology is particularly concerned with suppression and holding down, while another part is particularly concerned with conciliation and gaining support. One is the "for God and country" and "superior races must govern inferior races" part, while the other is the "let's all work together" and "help the economically backward peoples" part. Positivist philosophy is chiefly associated with the latter.

In general, various concessions and reforms can be granted and are granted by the ruling monopolies, to keep people quiet and win their support; they have the means to grant them from the tribute drawn from colonial exploitation, and it pays to grant them. In so far as such concessions are stopped or withdrawn, that is not a sign of the strength of the system but rather of its weakness and decay. This is the fundamental reason why an ideology which favours piecemeal and partial reforms arises of necessity from the conditions of monopoly capitalism, conforms to the system and serves it.

Moreover, many of the old habits, ways of conducting affairs and ways of thinking of the individual competitive capitalist appear out-of-date and useless to the monopolies and those associated with them. Here once again criticism of old ways arises, and critical and advanced ideas find favour.

But what is characteristic of the advanced and critical ideas of imperialism—as distinct from the revolutionary, or really advanced and really critical ideas of socialism—is that they never attack the basis of monopoly profits, just as the new methods, reforms and so on of imperialist rule are aimed at conserving that rule and the system it protects.

The critical and advanced tone of positivism is the expression in philosophy of these social tendencies born of monopoly capitalism. That is its secret, the secret of its origin and of its success.

In this aspect, the growth of the positivist type of ideology is fed from two sources. One of its sources lies in the illusions of the petty bourgeoisie, especially the relatively new stratum of professional workers, and of sections of the working class, concerning the advances which can be made on the basis of preserving the capitalist system. The system is accepted, and being accepted is also defended; and on that basis the idea is to make it work for the best. In so far as it springs from this source, positivism in philosophy is closely related to opportunism in the labour movement. And this relationship shows itself in the fact that so far as opportunism acquires a philosophical outlook it borrows it above all from positivism, while, for their part, some positivist philosophers are associated, some closely and others more loosely, with the labour movement. The other source lies in the ruling monopolies' policy of

winning support by limited concessions and fair words and wrapping up their actions in deceptive slogans.

Capitalism has always had a double ideology, and this duplicity has only become more marked in the epoch of monopoly capitalism. Capitalism has an advanced and critical ideology, and a retrograde, obscurantist ideology. Both serve capitalism, just as in practice capitalism has always used two methods of rule, the method of persuasion and the method of force. Both are equally capitalist. Force and obscurantism are apt to fail without persuasion and advanced ideas, but persuasion and advanced ideas are also apt to fail, or to lead too far, unless behind them stand force and obscurantism. That is why it always happens that persuasion leads people into a trap in which they are defenceless against force, and why the advanced ideas lead people into a trap in which they find themselves assisting the obscurantists.

In the theoretical field, positivist philosophy is precisely such a trap for would-be advanced thinkers. Where does it lead those who follow it? Into a wilderness. Bankrupt in relation to social programme, it is equally bankrupt in relation to philosophical theory. The logical-analytic method, the pragmatic method, the method of the logical analysis of language, and the rest, all claim to be methods of what Wittgenstein called "philosophical investigation" as distinct from philosophical speculation, and to furnish clear and definite answers to clear and definite problems. But they have yet to answer any problem whatsoever. And the more abstract the philosophical investigations have grown, the less conclusive have they become. This is still fondly believed to be a mark of the scientific character of positivist philosophy. But genuine science, distinguished by the give and take of discussion and readiness to revise conclusions, is also distinguished by steadily advancing to more reliable and comprehensive knowledge of its subject. Positivism, intending to be scientific and to clarify and use scientific conclusions, assumes as its basic standpoint that science cannot furnish knowledge of the real objective world. That is why it can never reach any scientific conclusions, and why, intending to employ science to fight obscurantism, it actually furnishes arguments against science to the obscurantists themselves.

In times of exceptional crisis and danger, however, capitalism usually tends to discard reforms and advanced ideas, and to rely on naked force and obscurantism. This is what happens when it turns to fascism. In such periods the partnership between the two parts of its ideology is disrupted, and a struggle breaks out.

"The accession to power of fascism must not be conceived in so simplified and smooth a form, as though some committee or other of finance capital decided on a certain date to set up a fascist dictatorship. In reality, fascism usually comes to power in the course of a struggle, at some times severe, against the old bourgeois parties."<sup>1</sup>

Similarly there is no ideological committee of monopoly capital which directs the activities of all bourgeois philosophers. At certain times and on certain issues, when capitalism is turning more and more openly to fascism and violence, the believers in advanced ideas and reform come under fire, and must return the fire, or keep quiet, or change sides.

Thus, for example, when Hitler fascism menaced the world, the schools of logical positivism were persecuted, and many positivists were ranged in the anti-fascist camp. At the same time it was possible, because of the imperialist nature of positivist philosophy and its service to obscurantism, for fascism itself to borrow elements of its ideology from positivist sources, and for members of some of the positivist schools (particularly the so-called phenomenologists in Germany) to become official fascist philosophers.<sup>2</sup> Similarly in the United States of America today, pragmatism, which is positivism in its most reactionary and imperialist form, can be used as the philosophy of American fascism, while at the same time many pragmatists, retaining liberal views, move into the anti-fascist camp.

Such ideological trends as positivism, therefore, from their very nature play an ambiguous role in practice. Because positivism is a disguised form of idealism and directs its arguments against materialism, it helps the very obscurantists and reactionaries it usually claims to oppose. Because the

<sup>1</sup> G. Dimitrov: *The Fascist Offensive*.

<sup>2</sup> The phenomenologist Heidegger became a leading Nazi philosopher. From this position he directed the persecution of his former teacher, Husserl, who was a Jew.



positivist world outlook is based on the acceptance of imperialism, it serves imperialism. But not all positivist thinkers are reactionaries. Some, indeed, do place themselves in the forefront of reaction. But just because the philosophy leans towards the "critical" and "advanced" trend of ideology, others in times of stress may place themselves in opposition to reaction and be drawn into the struggle against it.

This is the dilemma beginning to face many bourgeois philosophers at the present time. Either they go right over to serve the warmongers and fascists, or else they help—either a little or much, wholeheartedly or with reservations—the forces of democracy and peace.

### 3. POSITIVISM AND CONTEMPORARY SCIENCE

A peculiarity of positivism, in its contrast to other forms of bourgeois idealism, is its claim to be scientific, to be above all the modern philosophy of science. The truth about its claim to be scientific is that it has succeeded in expressing a general attitude towards science corresponding to the tendencies of modern monopoly capitalism.

Positivism makes much of science, praises it and calls for its development. This corresponds to the fact that imperialism has need of science. The "scientific" philosophy of imperialism gives voice to imperialism's need for the cultivation of science. But it calls for the cultivation of just that science which imperialism needs.

Monopoly capitalism, the last and highest stage in the development of capitalism, depends on advanced science and technology. But it seeks to use science for amassing profits, for intensifying the exploitation of labour, for getting the better of trade rivals, for finding effective means of influencing public opinion, and for war.

By denying that science is a means of gaining knowledge of the objective world and man's place in it, positivist philosophy combats the materialist outlook in science, with its critical and revolutionary implications, stultifies science as a weapon for the enlightenment of the masses, and conceals the ways in which science can be applied for the true aims of human welfare. This is absolutely in accordance with what is required by its real masters, the imperialist bourgeoisie. And by maintaining

that science serves simply to formulate and predict the results of certain technical operations, positivist philosophy uncritically accepts and thereby justifies the present position of science in the capitalist world, where it is more and more dominated by the great trusts and the war machine. This it does in the name of scientific method and of the freedom of science.

Science is both frustrated and perverted as a result of its subjection to the interests of monopoly capital. Briefly, some of the results most obvious on the surface are the following:

There is an accentuation of the unevenness and lack of balance in the development of the sciences, which has always been characteristic of bourgeois science—some branches of science developing in a one-sided way while others lag behind. Science is called upon to answer just those particular problems in which the capitalist monopolies are interested, which is by no means the same as answering the problems which are bound up with the future development of science and with the interests of the people.

There results a frustration of fundamental research in fields that are important for the all-round development of science and for the ends of general human welfare, and a diversion of research into less useful fields or into directions that are harmful or anti-social. Emphasis is placed on this or that particular research desired by the monopolies for their own private gain, or for war preparations.

There results a narrow spécialisation of scientists—the training of people who are supposed to be experts in some narrow field but whose outlook is completely unscientific outside that field, whatever it may be inside it.

There results the failure to relate the findings of one science with those of another, and in consequence the frustration of the building of a unified scientific picture of the world which could serve as a weapon in the struggle for enlightenment and progress. There are propagated in the name of science all kinds of idealist and obscurantist views.

There results the use of science against the people and not to serve the interests of the people—in other words, the use of science for the ends of more efficient capitalist exploitation and war.

And there results the failure to use science to enlighten the people, to give them a new world outlook in the light of which men can understand the world which environs them and how to master the forces of nature so as to serve the ends of human well-being.

Positivist philosophy is bound up with all these negative features of contemporary bourgeois science. Its view that the whole task of science is to base on particular observations predictions of the results of certain technical operations corresponds with a position where science is simply a technical aid for the making of maximum profits. It helps to cover up the actual position of science, namely, that it is being shamefully perverted, militarised and regimented. It diverts attention away from the examination of the real social functions of science and of the conditions necessary to direct science into the service of man and his needs.

It may be added that for years bourgeois science has found itself in a state of chronic theoretical crisis, affecting not only the physical but also the biological sciences—a crisis of fundamental conceptions. This arises from the fact that the very discoveries of science, the deepening of knowledge of the laws of motion of matter, have proved incompatible with the metaphysical ways of thinking and mechanist categories which were the theoretical armoury of science at an earlier stage of its development.

Engels long ago realised that this could only mean that “natural science has now advanced so far that it can no longer escape the dialectical synthesis” and must “rid itself . . . of its own limited mode of thought, which was its inheritance from British empiricism.”<sup>1</sup>

However, to a very considerable extent bourgeois science continues to “escape the dialectical synthesis” and refuses to “rid itself of its inheritance from British empiricism.” It pays for this by plunging deeper into its theoretical crisis with every new discovery that is made. On the theoretical side there occurs an obstinate hanging on to the methods of metaphysics and mechanism; and the ineffectiveness and breakdown of these methods is the occasion for a spate of idealist speculations.

By teaching the unknowability of the real world and that the

<sup>1</sup> Engels: *Anti-Duhring*, Preface.

most science can do is to correlate observations and propound theories of pragmatic value, positivist philosophy joins hands with idealist theorising within the special sciences themselves. Its conception of methodology—of the statement of “laws,” expressed in terms of a minimum number of “entities” and of external relations between those entities—arose from and carries on the traditional metaphysical mechanism of the past; while its view that these “laws” simply correlate observations, and do not reflect the laws of motion and interconnection of the real external world, combines this metaphysical mechanism with idealist views of knowledge and of the known world.

Imperialism needs the services of its scientists, and it also needs the services of its priests. By its very limitation of the field of scientific knowledge—which it derives in a direct line from the philosophy of Bishop Berkeley—positivism so interprets the discoveries of science that they cannot conflict with or overset the essential teachings of religion.

But it does a great deal more than this. Various forms of religious obscurantism continue today to influence millions of people. But there are millions more over whom its influence is lapsing. Positivist philosophy not only disarms science in the fight against obscurantism, but it makes science itself preach obscurantism. The scientist becomes not only no opponent of the priest, but his auxiliary—and his substitute. In the name of science and scientific philosophy theories are put forward which essentially distort and mystify our conceptions of the world and of human relationships and activities.

This is exemplified in the physical sciences, where the standpoint is adopted, not merely in philosophical writings about physics, but in text-books and treatises of physics itself, that the task of physics is merely to elaborate a mathematical formalism which will help calculate the results of experiments, and where this standpoint is combined with theories of the immateriality of matter and of the finite universe. It is equally exemplified in the biological sciences, which continue to be haunted by the metaphysical conception of the gene, and where the causes of heredity and its variability, and the causes of evolution, are assigned to chance or (which is the same thing) written off as unknowable, because the dialectical interconnection of organism and environment is neglected.

The discoveries of the sciences and the tools of scientific research themselves provide the means for finding the way out of the impasse of idealism and metaphysics in which the theories of the sciences have become entangled. That these means are not used is due to the fact that this idealism and metaphysics is inherent in the very methods of thought of bourgeois science, from which it can only escape by turning to the methods of dialectical materialism, that is, by ceasing to be bourgeois science, breaking with bourgeois ideology.

The positivist philosophy of science is closely connected with this penetration of scientific theory by metaphysical and idealist conceptions. Teaching the limitations of science and the unknowability of the objective world, it bids science be content with any *ad hoc* hypotheses, with any theory which with reasonable neatness correlates the observations, and not to expect to be able to discover the real causes of phenomena and the real laws of motion and interconnection of the objective world. The more we know, the less we know; the more we find out about the world, the more mysterious we find it to be; the more we investigate causes, the more we find ourselves to be impotently struggling at the mercy of chance and of blind forces we cannot understand or control—this is the message of this philosophy, and the message which is being put over by the reactionary exponents of bourgeois science.

All the live and progressive forces of the world of science are seeking to combat such pessimistic and obscurantist conclusions, just as they are seeking to combat the frustration and perversion of science by its subjection to the will of the capitalist monopolies and their drive to war. One of the conditions for success in this fight, one of the conditions for ensuring, indeed, the very future of science, is to break with the positivist philosophy of science.

#### 4. POSITIVIST PHILOSOPHY REFLECTS THE MORAL AND INTELLECTUAL DISINTEGRATION OF THE CAPITALIST WORLD

At the stage when capitalism was still a progressive force, the bourgeois philosophers, and above all the Cartesians and after them the French Encyclopædists, boldly asserted the possibility of the indefinite advancement of scientific knowledge of the

objective world of nature and society. They believed in the power of human reason. They thought we could gain increasing and deeper understanding of the forces that environ us and of the conditions of our own lives, thus learning how to manage human affairs rationally and how to extend man's dominion over nature.

This rationalist, humanist spirit of classical bourgeois philosophy has since been inherited and carried forward by Marxism, which expresses the striving of the progressive class of today, the working class, for the goal of communism. But it has disappeared from bourgeois philosophy. In its place is to be found everywhere the assertion of the limitations of human knowledge, the limitations of science, the impotence of reasoned thought and the risk and uncertainty that attends every form of human endeavour.

This pervading scepticism is but the natural and inevitable concomitant of an economic system in full decay. Capitalist economy is in a state of general crisis, rent with insoluble contradictions, staggering from crisis to crisis, unable to satisfy the demands of the people. It is because within the limits of capitalism men are at the mercy of blind forces which they cannot understand or control and can find no path of progress, that capitalist philosophy has ceased to assert the power of the human mind to understand objective reality. That assertion now carries with it the realisation of the decadence of capitalism and the need to put an end to it.

Contemporary positivism is one of the aspects, and an important one, of the resulting general intellectual disintegration.

This disintegration is expressed in many ways. It is expressed, for example, in the openly anti-scientific philosophy of the existentialists. It is expressed in those theological outpourings now coming increasingly into vogue, which teach that man is essentially wicked and that our only hope is complete submission to the will of God, as expressed by the instructions of whatever church the particular theologian happens to belong to. It is expressed by those popularisers of science who explain that the more science discovers, the more does it discover that the universe is essentially mysterious and unknowable.

For their part, the positivists are distinguished by preaching the renunciation of reason and science in the name of reason

and science. All their leading doctrines amount to this—for example, that philosophy is reduced to the analysis of language, that logic is a formalistic play with symbols, that science is a language for writing down the results of operations, that truth does not reflect the objective world but consists of assertions that are found to work.

Nowhere is the fundamental negativity, scepticism and hopelessness of contemporary positivist philosophy better expressed than in the recent writings of Bertrand Russell.

Thus on the second page of the Introduction to his *History of Western Philosophy* Russell announces: "Science tells us what we can know, but what we can know is little. . . . To teach how to live without certainty, and yet without being paralysed by hesitation, is perhaps the chief thing that philosophy, in our age, can still do for those who study it."<sup>1</sup>

What is above all important, Russell several times insists, is to renounce, along with inflated philosophical pretensions to knowledge of the objective world, the "sense of the collective power of human communities," the "intoxication of power, which . . . I am persuaded . . . is the greatest danger of our time,"<sup>2</sup> and which he finds exemplified in pragmatism. Russell cannot distinguish between an illusion of power and the real power of human communities, founded on knowledge and a rational form of social organisation. For him "the collective power of human communities" must always remain a vain illusion.

At the very end he is led to "confess frankly that the human intellect is unable to find conclusive answers to many questions of profound importance to mankind."<sup>3</sup> The best that can be done, according to Russell, is contained in the very limited kinds of results achieved by the method of "logical analysis." And this is the hope of the world, of "the rationalistic reconquest of men's minds."<sup>4</sup> For "the habit of careful veracity acquired in the practice of this philosophical method can be extended to the whole sphere of human activity, producing,

<sup>1</sup> Russell: *History of Western Philosophy*, p. 11.

<sup>2</sup> *Ibid.*, pp. 855-6.

<sup>3</sup> *Ibid.*, p. 864.

<sup>4</sup> *Ibid.*, p. 818.

wherever it exists, a lessening of fanaticism with an increased capacity of sympathy and mutual understanding."<sup>1</sup>

What the "habit of careful veracity" which Russell has acquired amounts to in practice may be judged by his various excursions into political "analysis." His doubtless sincere efforts to produce "a lessening of fanaticism" are frustrated by his habit of taking on trust whatever the most fanatical reactionaries tell him. Indeed, his "philosophical method" seems to have rendered him incapable in practice of checking his facts or distinguishing fact from fiction.<sup>2</sup>

The intellectual disintegration is accompanied by a moral disintegration. Just as bourgeois philosophy has become unable to offer any rational account of the world, so it finds itself unable to offer any rational standards of conduct. The bourgeoisie have in practice renounced all moral standards; they know no law but that of power politics and self-interest. And this moral disintegration, too, is vividly expressed in contemporary positivism.

With the logical positivist "analysis of language" became associated the view that moral and ethical statements of all kinds are strictly meaningless. They are unverifiable, have no sort of scientific basis and are susceptible to no sort of scientific test or criticism. Thus they are to be regarded as emotive noises, expressing personal or group moral sentiments and preferences; or perhaps as "imperatives," i.e., not grounded statements but injunctions, intended to influence other people's behaviour in ways desired by a given individual or group. "A value statement," says Carnap, "is nothing else than a command in a misleading grammatical form . . . it does not assert anything and can neither be proved nor disproved."<sup>3</sup>

<sup>1</sup> Russell : *History of Western Philosophy*, p. 864.

<sup>2</sup> Here are some examples of "careful veracity" from Russell's latest (1954) book, *Human Society in Ethics and Politics*:—"Millions of Russian peasants" have been "exterminated" by the Soviets; there are "vast camps of forced labour" in the Soviet Union; and "the last few years have seen the extension of the same system to China" (p. 156). In the socialist countries, "power is more completely concentrated in the hands of a small minority than it is anywhere else" (p. 185). The "Communist rulers" have been seeking "world domination" (p. 211). Stalin "inflicted torture" on "millions" (p. 221). The Soviet Government acts on the assumption that "hate is the moving force in human affairs" (p. 229). Malenkov is busy preparing "the extermination of mankind" (p. 239).

<sup>3</sup> Carnap: *Philosophy and Logical Syntax*, p. 24. The same ideas are expressed by A. J. Ayer in *Language, Truth and Logic*.



This position was forcibly expressed by Professor H. Dingle, in a lecture on *Science and Ethics* before the British Social Hygiene Council. The professor's contribution to the cause of social hygiene was to declare his agreement with the logical positivists that ethical questions "stand right outside the scope of scientific investigation." There was, he said, "an insurmountable barrier" between science and ethics. For while science is based "on reason and experience," ethics "so far at least has not in general found any basis at all."

"At bottom," said Professor Dingle, "all systems of ethics and all exhortations to a particular kind of conduct must rest on a dogma which it is useless because impossible to justify." And he concluded: "The fact that morality cannot be based on experience or reason leaves open the question what its basis may be. We are still faced with the problem—How shall I choose? And I have no solution to offer. We do not without reluctance accept a conclusion which leaves the most fundamentally important thing in our lives a matter of caprice, and I do not offer it as a gospel but simply as an inescapable fact."<sup>1</sup>

It is because Dingle and the logical positivists lack any scientific conception of society and its laws, and express the point of view of a class whose whole basis of existence must be condemned at the bar of reason because it has ceased to possess any historical justification, that they cannot see how science, reason or experience has any relevance to questions of conduct, of what to do, of what ends are worth striving for or what moral qualities of the individual are worth cultivating.

Professor A. J. Ayer, who shares the positivist view about "the analysis of moral judgments," has carefully explained that "the theory is essentially on the level of analysis; it is an attempt to show what people are doing when they make moral judgments; it is not a set of suggestions as to what moral judgments they are to make." Hence "moral philosophy" is "neutral as regards conduct." This, says Ayer, "is one reason why many people find moral philosophy an unsatisfying subject. For they mistakenly look to the moral philosopher for guidance."<sup>2</sup>

Clearly, here is a philosophy which explicitly denies the

<sup>1</sup> *Nature*, Vol. 158, No. 4006, August 10, 1946.

<sup>2</sup> A. J. Ayer, *Philosophical Essays*, London, 1954, pp. 245-6.

possibility of any rational or scientifically grounded human morality. It explicitly separates moral questions from any relationship with reason or science—a separation already carried out in practice in capitalist society.<sup>1</sup>

The burden of the pragmatists' attitude to morality is the same. But whereas the logical positivist "analysis of value judgments" gives expression to feelings of bewilderment and moral frustration—"I have no solution to offer"—pragmatism is made of sterner stuff. The tone was set by William James' book with the provocative title *The Will to Believe*. According to James, our beliefs cannot be based on scientific knowledge of objective reality, but the important thing is to have the will to assert those moral convictions which are found to "pay." If they work, then they are "true."

Pragmatism does not accept the view that "value judgments" are "meaningless." It sees all ideas as means to action, which become true in proportion as they yield "fruits" and "payments." It accordingly sees "valuation" as one of the functions of our ideas. And our "valuations," too, are justified simply in proportion as we make them work.

This view, like all positivism, denies the very possibility of an objective and rational basis for human morality. But while it denies any rational foundation for moral beliefs, it inculcates "the will to believe"—in effect, a blind affirmation of whatever one thinks will help fulfil what James called "our general obligation to do what pays."

I do not think that the moralising of the pragmatists can conceal the reality which lies behind their view of morality. The capitalist world is suffering complete moral collapse, a

<sup>1</sup> Russell has made a belated attempt in his *Human Society in Ethics and Politics* to establish a "scientific" system of practical morality by reviving the utilitarianism of the early 19th century. "Right conduct", he asserts, is "that conduct which will probably produce the greatest balance of satisfaction over dissatisfaction." His difficulty is to decide in what consists "the greatest balance of satisfaction," and then to discover what conduct will probably produce it. If, indeed, by "the greatest balance of satisfaction" Russell had meant what Stalin meant by "the maximum satisfaction of the ever-growing material and cultural needs of the whole of society," he might have been led to some practical conclusions as to how to achieve it. The failure of his book is mainly due to his inability to base his moral philosophy on any scientific theory of man and society. He sees man as a collection of irrational impulses, and invariably refers to society as "the herd". Since the positivists' conception of man and society is devoid of the least element of science, it is no wonder that they never approach any scientific conception of morals.

prelude to its final disappearance from the stage of history. But as part of its fight for survival goes the desperate affirmation of its so-called "values"—the "values" of "free enterprise" and of the scramble for maximum profits, decked up today as the "values of western civilisation." And these "values" are used as a rallying cry in the fight against socialism.

Capitalist society has long since ceased to have any historical justification, and its slogans have no rational or scientific basis. This is why the more "tough minded" among bourgeois ideologists have given up any pretence of seeking such a basis for their "valuations," which are simply asserted, and the louder the better, as requiring no justification.

This is the situation of which positivism and pragmatism in particular is the philosophical expression. It is a philosophy which is powerless to oppose, and so in practice can only accept, the cannibal morality of the imperialists, who are trying to make it work by imposing it upon the whole world.

## 5. CONCLUSIONS

The main conclusions about contemporary positivist philosophy which emerge from this entire discussion may now be summed up as follows:

(1) Contemporary positivist philosophy is a continuation of the subjective idealism established two hundred years ago by Berkeley. The various theories of logical analysis, logical positivism and pragmatism, with all their variations, are in essentials only a repetition of old subjectivist theories, merely refurbished and disguised with new terminology and new phrases and catchwords.

(2) The positivist schools are characterised by their fundamental hostility to materialism. For materialism, the objective material world exists and is knowable. Knowledge arises from men's efforts to control and reshape for their own purposes the things about them, and their own social relations; and the test and proof of the objective truth of ideas lies in the resulting ability to understand and control natural and social forces. Through practice, human thought and human reason develop and prove themselves capable of penetrating to and grasping the essence of objective reality. But positivism denies the possibility of such knowledge.

(3) The positivist philosophical outlook is a product of imperialism, the last stage of capitalism, and reflects the intellectual and moral disintegration of capitalist society. Denying the scope and power of human knowledge and human action, it affirms the limitations of science, the relativity of truth, the impotence of reason, the mysteriousness and incomprehensibility of the universe, the illusoriness of social progress.

(4) Representing itself, in line with the prestige of science in contemporary society, as a scientific philosophy, positivism so interprets scientific methods and scientific discoveries as to stultify science as a weapon of enlightenment and progress and leave it virtually powerless to oppose current anti-scientific myths and dogmas. But more than that. Claiming to show how the sciences can be unified and utilised for practical purposes, it produces a philosophy of science which reflects only the frustration and perversion of science under monopoly capitalism.

(5) Positivist philosophy must therefore be judged as in essence and outcome hostile to science and hostile to human progress.

Many intellectuals who have embraced the positivist doctrines in one form or another, or are influenced by them, think that they can reject the whole basic philosophical controversy between materialism and idealism and keep themselves clear of the social controversy which it reflects. That this is an illusion is increasingly shown by some of the leading positivist philosophers themselves, who are openly associated with the fight against progress and socialism, and by the use of positivist arguments by some of the most extreme obscurantists and reactionaries as a means of discrediting scientific arguments and backing up their own point of view.

Those who are attracted to positivism because of its apparent concern for science and clear thinking cannot in the end escape from the necessity of breaking with positivism, if they want to practice science and clear thinking.

The liberation of humanity from poverty, oppression and superstition is the great task of the present age, leading to the realisation of all the achievements of which free and organised humanity is capable. The task of philosophy cannot be separated from this task. Those philosophers whose outlook

is to accept the existing state of affairs, or who separate their philosophical ideas from the struggle for progress, may continue to busy themselves with "logical analysis." Their outlook reflects only the conditions of the final crisis of capitalism, and the advance of science and life will leave them behind. The progress of philosophy, as understanding of the world and men's place in it, has always been based on and has served the pursuit of human happiness. Today it is represented by dialectical materialism. As for dialectical materialism, it sets no limits to the advance of our knowledge and of our power to live well and plan our lives with the object of securing the best for everyone, making use of the resources of nature to satisfy all the requirements of man. It alone consistently represents the future of philosophy, because it alone is consistently based on and serves the struggle for the future of mankind.

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